# Acer Altos G520 series

## User's guide

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Acer Altos G520 series
User's guide

1st Issue: July 2004

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Record the model number, serial number, purchase date, and place of purchase information in the space provided below. The serial number and model number are recorded on the label affixed to your computer. All correspondense concerning your unit should include the serial number, model number, and purchase information.

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Model Number : ___________________________________

Serial Number: _____________________________________

Purchase Date: _____________________________________

Place of Purchase: __________________________________

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# Notices

## FCC notice

Class A devices do not have an FCC logo or FCC IDE on the label. Class B devices have an FCC logo or FCC IDE on the label. Once the class of the device is determined, refer to the following corresponding statement.

### Class B equipment

This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the device and receiver
- Connect the device into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

Notice: Shielded cables

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

Notice: Peripheral devices

Only peripherals (input/output devices, terminals, printers, etc.) certified to comply with the Class A or Class B limits may be attached to this equipment. Operation with noncertified peripherals is likely to result in interference to radio and TV reception.

**Caution!** Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this server.

Use conditions

This part complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice:  Canadian users

This Class A/Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

# Laser compliance statement

The CD-ROM drive in this server is a laser product.  The CD-ROM drive's classification label (shown below) is located on the drive.

CLASS 1 LASER PRODUCT
**CAUTION:**  INVISIBLE LASER RADIATION WHEN OPEN.  AVOID EXPOSURE TO BEAM.

# Important safety instructions

Read these instructions carefully. Save these instructions for future reference.

1 Follow all warnings and instructions marked on the product.

2 Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

3 Do not use this product near water.

4 Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

5 Slots and openings on the back or bottom side of the chassis are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

6 This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

7 Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

8 If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.

9 Never push objects of any kind into this product through chassis slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

10 Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

11 Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    a When the power cord or plug is damaged or frayed

    b If liquid has been spilled into the product

    c If the product has been exposed to rain or water d If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.

e If the product has been dropped or the cabinet has been damaged

f If the product exhibits a distinct change in performance, indicating a need for service.

12 Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified service technician.

13 **Warning!** Batteries may explode if not handled properly. Do not disassemble or dispose of them in fire. Keep them away from children and dispose of used batteries promptly.

14 Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SPT-2, rated 7A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

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# 1 System tour

The Acer Altos G520 series server is a powerful dual-processor system loaded with a host of new and innovative features. The system offers a new standard for flexible productivity ideal for general business applications, email, web service and print services.

# Product briefing

This section provide basic information concerning the configuration of your Altos G520 system.

## Processor

- Single or dual Intel® Xeon™ processor with 800 MHz FSB
- Intel® Hyper-Threading™ Technology support

## Memory subsystem

- Four (184 - pin) DIMM slots
- DDR 333/400 MHz ECC Register, Buffered memory modules supported
- Maximum upgrade - 8 GB

**Warning!** Functionality issues may be encountered if mixed memory types are installed on the same server board. DIMM modules of identical type, banking and stacking technology, and vendor should be installed in the Altos G520.

**Caution!** When using multiple memory modules it is recommended that you AVOID using modules from different manufacturers or that run at different speeds from each other.

**Note:** 333 MHz memory will run at 320 MHz when used with a processor with 800 MHz system bus frequency.

## Storage

- 5.25 inch IDE CD-ROM drive
- 3.5 inch Floppy disk drive
- Support for three (max) hard disk drives
- Four additional 5.25 Inch device bays for add-on options such as:
  - DDS4 DAT 20/40 GB tape backup drive

  - DAT72 36/72 GB tape backup drive
  - AIT1 35/91 GB tape backup drive
  - DVD-ROM, DVD-RW, DVD-Dual or other optical drive

## Graphics interface

- On-board ATI RageXL PCI Video with 8MB memory

## Networking

- Single Gigabit Ethernet port

## I/O ports

- Front
  - Two USB 2.0 ports
- Rear
  - Four USB 2.0 ports
  - Two PS/2 ports (keyboard/mouse)
  - One LAN port (RJ-45)
  - One parallel port
  - Two serial ports

## Serial ATA ports

- Two serial ATA ports supporting RAID 0 or RAID 1

# Caring features

Part of Acer's mission, as a company that cares about its end users, is to provide features that make operation, maintenance, and upgrading your system simpler and faster. The Altos G520 is no exception to this rule. The following features and options are provided.

- Cost efficient operation in a value oriented package.
- Front accessible USB ports.
- Acer EasyBUILD™ for efficient system setup and installation.
- Acer Server Manager (ASM) suite of comprehensive management tools.

# Product specification summary

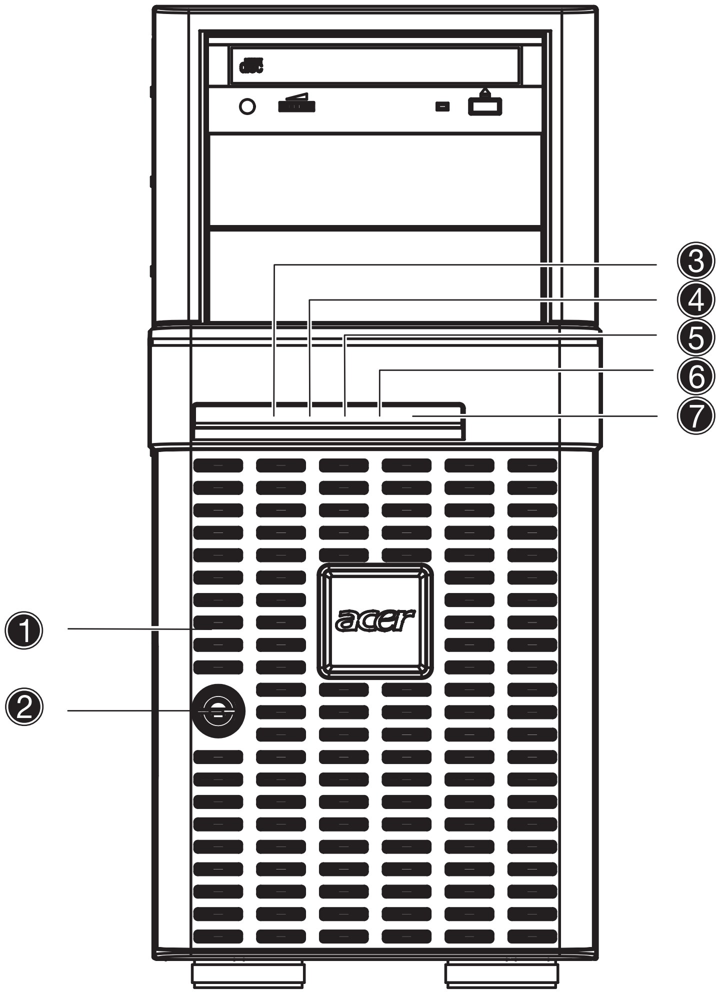
Highlighted below are the system's key features:

- Single or dual Intel® Xeon™ processor supporting 800 MHz FSB
- Intel® E7320 core logic chipset consisting of:
    - Intel® 827320 Memory Controller Hub (MCH)
    - Intel® 6300ESB I/O Controller Hub (ICH)
- Intel® 82541 Platform LAN Connect (PLC) device for 10/100/1000 Mbits/sec Ethernet LAN
- Dual on-board SATA 150 ports
- Five PCI bus slots with three separate bus segments
    - One PCI-Express X4 bus slot
    - Two 64-bit/66 MHz PCI-X bus slots
    - Two 32-bit/33 MHz PCI bus slot
- ATI Rage XL video controller with 8 MB SDRAM
- Four DIMM sockets supporting ECC 266/333 MHz DDR modules for a maximum memory capacity of 8 GB
- Media storage
    - 3.5-inch, 1.44 MB floppy drive
    - IDE CD-ROM drive
- Additional media storage capacity
    - Hot Plug HDD cage
        - supporting up to four 3.5 inch SCSI Ultra320 15K rpm 80pin drives
        - supporting up to four 3.5 inch SATA 150/300 10K rpm drives
    - Non-Hot Plug HDD cage
        - supporting up to four 3.5 inch 68pin SCSI drives
        - supporting up to four 3.5 inch SATA 150/300 drives
- External ports
    - PS/2 keyboard/mouse ports
    - One Serial/VGA (monitor) port
    - Four USB 2.0 ports
    - One LAN port
- Power supply unit (PSU)
    - 610-watt 1+0/1+1 redundant power supply subsystem (with power distribution board).
    - 600-watt single standard (non-redundant) power supply.

# External and internal structure

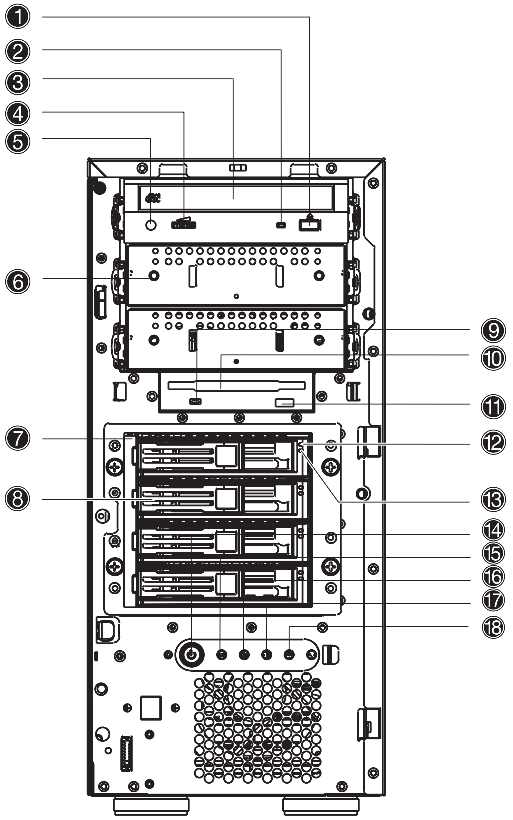
## Front bezel

**Note:** One pair of system keys are attached to the rear panel. .



| No. | Description | No. | Description |
|---|---|---|---|
| 1 | Front bezel | 2 | Security keylock |
| 3 | System power indicator | 4 | Hard disk activity indicator |
| 5 | Fault indicator | 6 | LAN1 activity indicator |

# Front panel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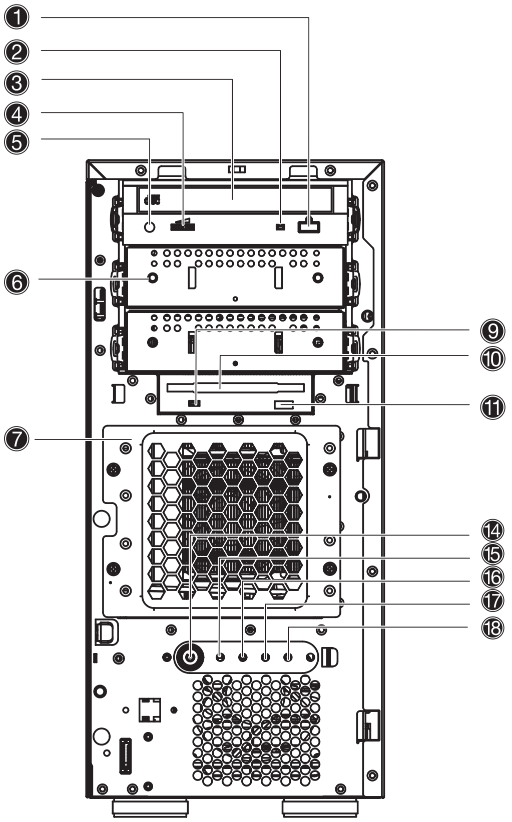
Altos G520 with Hot Plug hard disk cage installed.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Altos G520 with non-Hot Plug hard disk cage installed.

| No. | Description |
|---|---|
| 1 | CD-ROM drive Stop/Eject button |
| 2 | CD-ROM drive activity indicator |
| 3 | CD-ROM drive |
| 4 | Volume control |
| 5 | CD-ROM drive Headphone/Earphone port |
| 6 | 5.25-inch half-height drive bay |
| 7 | Hot Plug hard disk cage -or- Non-Hot Plug hard disk cage (manufacturing optional) |
| 8 | HDD carrier (for Hot Plug HDD Cage only) |
| 9 | Floppy drive activity indicator |
| 10 | Floppy drive |
| 11 | Floppy drive Eject button |
| 12 | Hot Plug HDD power indicator [1] (for Hot Plug HDD cage only) |
| 13 | Hot Plug HDD access indicator [2] (for Hot Plug HDD cage only) |
| 14 | Power button |
| 15 | System power indicator |
| 16 | Hard disk activity indicator |
| 17 | System fault indicator |
| 18 | LAN activitiy indicator |

[1] This indicator lights up green to indicate HDD power on and lights up in red when a HDD fault occurs.
[2] This indicator lights up green to indicate drive access.
[3] When system is degraded or faulty,the status indicator would blink or light up amber.

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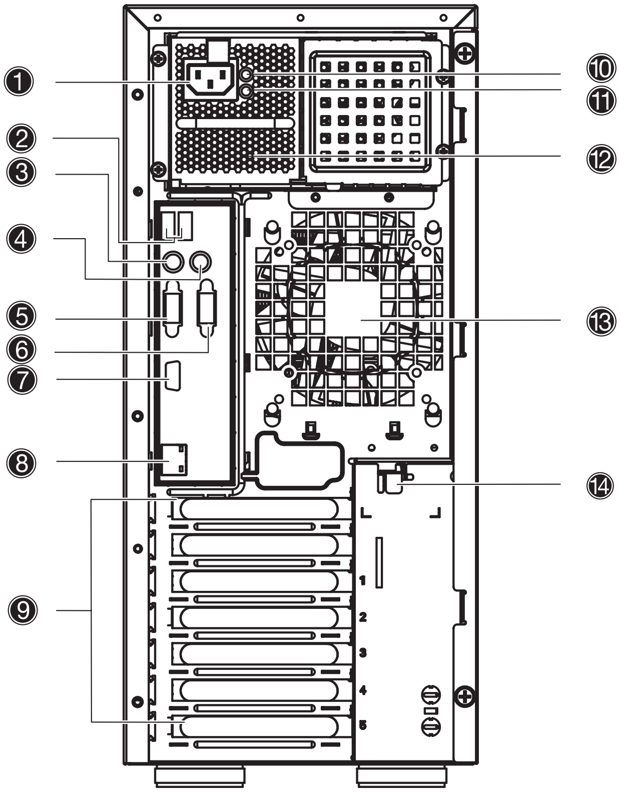
# Rear panel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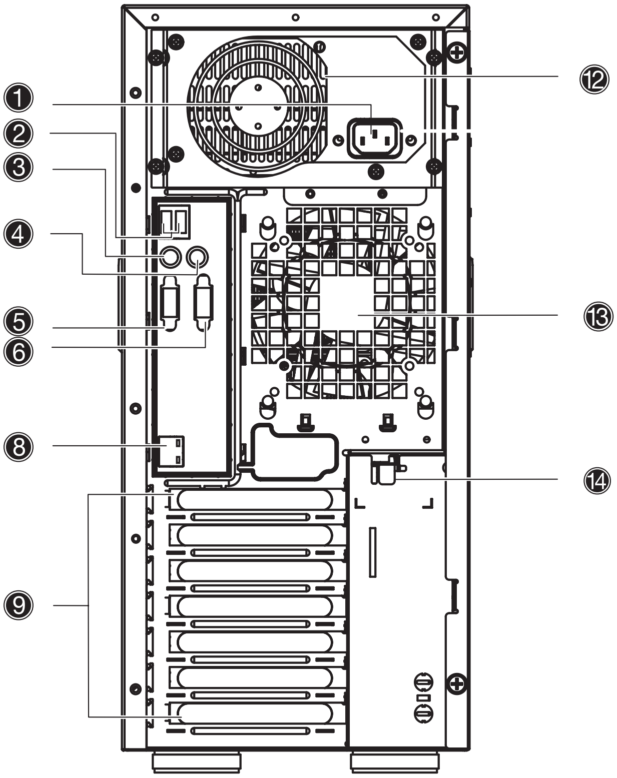
Altos G520 with redundant power supply unit installed.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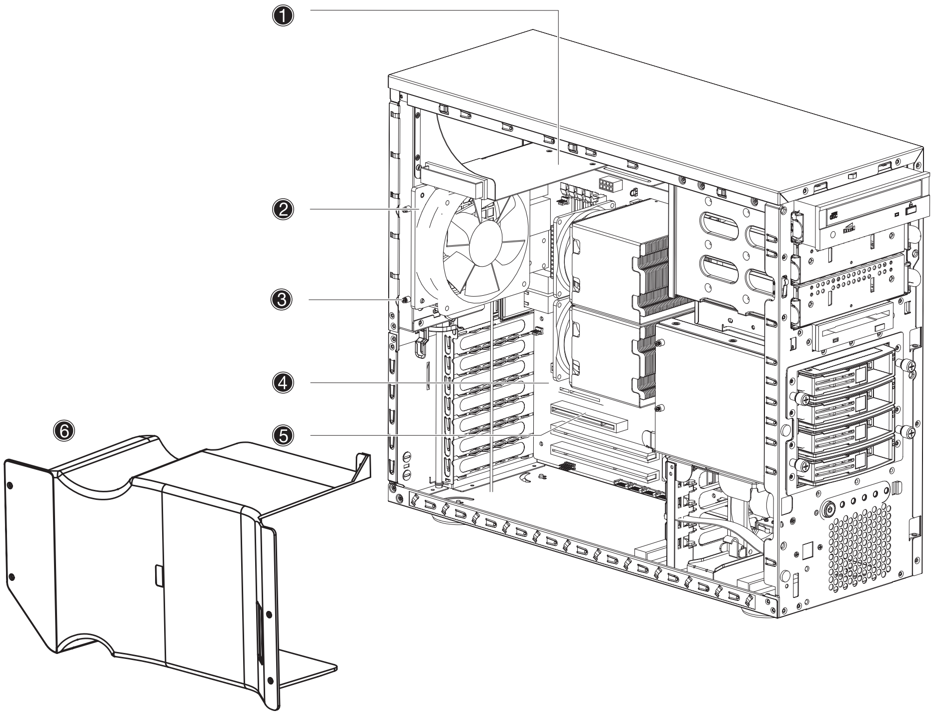
Altos G520 with fixed single power supply unit installed.

| No. | Icon | Description |
|---|---|---|
| 1 | | Main power supply cable socket |
| 2 | | USB ports |
| 3 | ⌨ | PS/2 keyboard port |
| 4 | 🖱 | PS/2 mouse port |
| 5 | 🖵 | VGA/monitor port |
| 6 | | Serial port |
| 7 | | |
| 8 | Gbit | Gigabit LAN port (10/100/1000 Mbps) |
| 9 | | Expansion slots |
| 10 | ⦶ | Main power supply indicator [1] |
| 11 | ⚠ | Main power supply fail indicator [2] |
| 12 | | Main standard 600-watt power supply unit (PSU) |
| 13 | | Rear system fan |
| 14 | | Side Panel lock release |

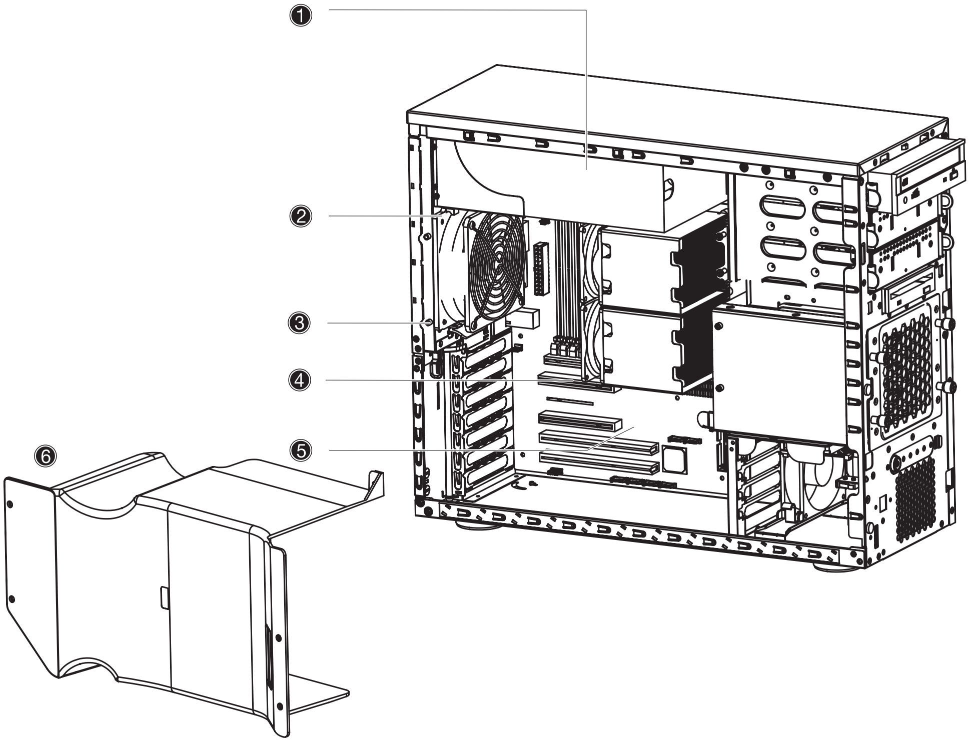
[1] This indicator will light up green when the power supply module is functioning properly.

[2] This indicator will light up amber when the power supply module or any PSU internal fan fails.

# Internal components



Altos G520 with Hot Plug hard disk cage installed.



Altos G520 with non-Hot Plug hard disk cage installed.

| No. | Description |
|---|---|
| 1 | Power supply module bays for two redundant PSUs [1] -or- one single standard PSU bay (Manufacturing optional) |
| 2 | Rear system fan |
| 3 | Rear system fan screw (to secure the rear system fan) |
| 4 | Mainboard |
| 5 | PCI bus slot |
| 6 | Air baffle |

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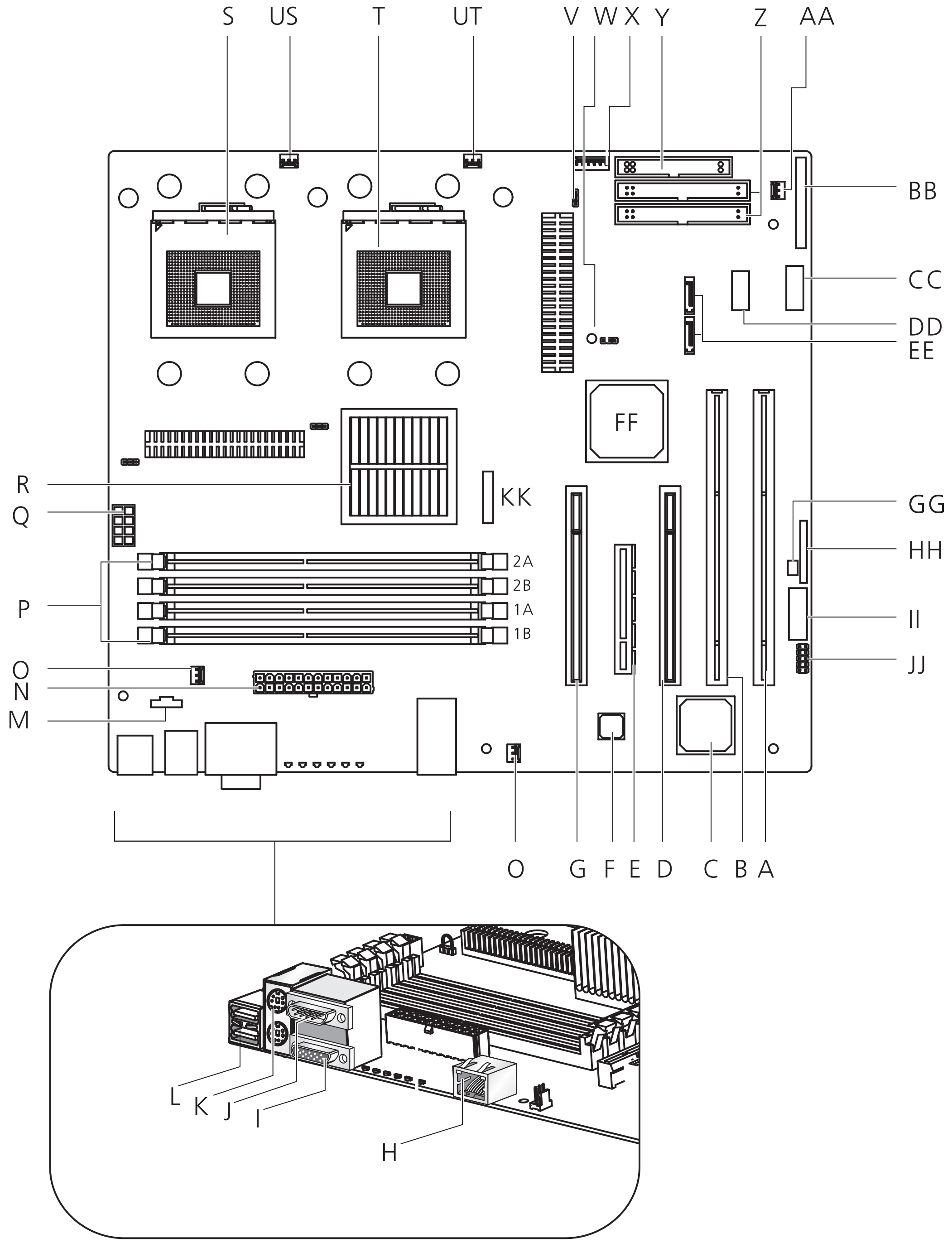
[1] Though the system supports two hot-swappable power supply modules, the system comes bundled with a single standard 600-watt power supply module only. You have the option to purchase an extra power supply module to provide the system with a redundant power source.

# System boards

## Mainboard layout

The mainboard becomes accessible once you open the system. It should look like the figure shown below.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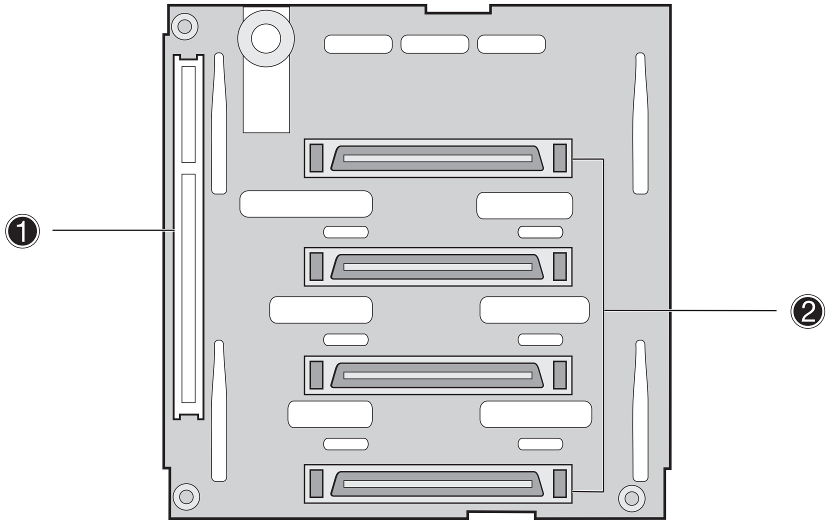
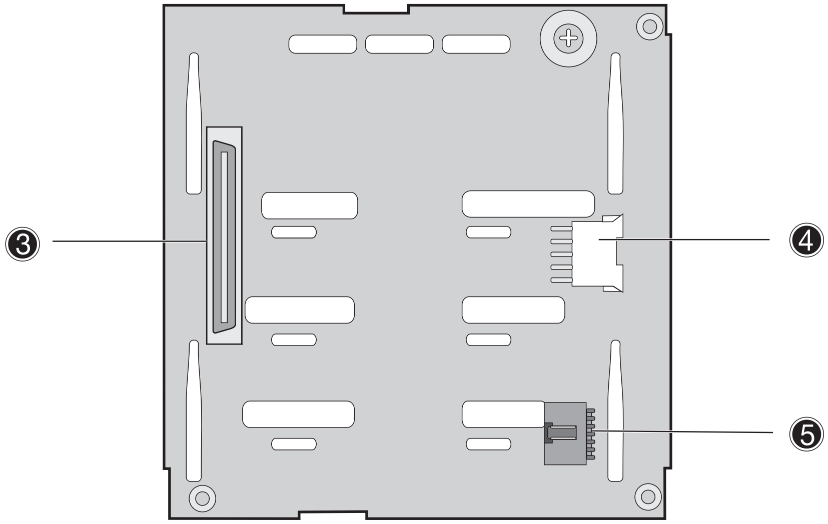
**Note:** Unless otherwise indicated, all mainboard features indicated on the table below apply to both the Altos G520 and Altos G520 Basic models.

| Item | Description |
|---|---|
| A | 64-bit/66 MHz PCI-X bus slot 1 |
| B | 64-bit/66 MHz PCI-X bus slot 2 |
| C | ATI Rage XL VGA chipset |
| D | 32-bit/33 MHz PCI bus slot 3 |
| E | x4 PCI-Express slot 4 |
| F | Gigabit LAN chipset |
| G | 32-bit/33 MHz PCI bus slot 5 |
| H | Gigabit LAN port (10/100/1000 Mbps) |
| I | VGA/monitor port |
| J | Serial port |
| K | Upper: PS/2 mouse port<br>Lower: PS/2 keyboard port |
| L | USB ports |
| M | Auxilliary power connector |
| N | Main power connector |
| O | Rear system fan headers (two) |
| P | DIMM slots |
| Q | +12V CPU power connector |
| R | Intel® E7320 MCH chipset |
| S | CPU socket 1 |

| Item | Description |
|---|---|
| US | CPU 1 fan header |
| T | CPU socket 2 |
| UT | CPU 2 fan header |
| V | ATA power connector |
| W | BIOS select jumper |
| X | IPMB connector |
| Y | Floppy drive connector |
| Z | Primary and Secondary ATA connector |
| AA | Front system fan header |
| BB | Front panel connector |
| CC | Front panel USB header |
| DD | ARMC connector |
| EE | SATA A1 and A2 connectors |
| FF | Intel® 6300ESB ICH (ICH5 HR) |
| GG | Chassis Intrusion header |
| HH | Jumper Block<br>1-3 CMOS Clear<br>5-7 Password Clear<br>9-11 Recovery Boot |
| II | Serial B header |
| JJ | SCSI LED connector |
| KK | Battery |

# Hot Plug HDD Cage backplane board layout (SCSI)

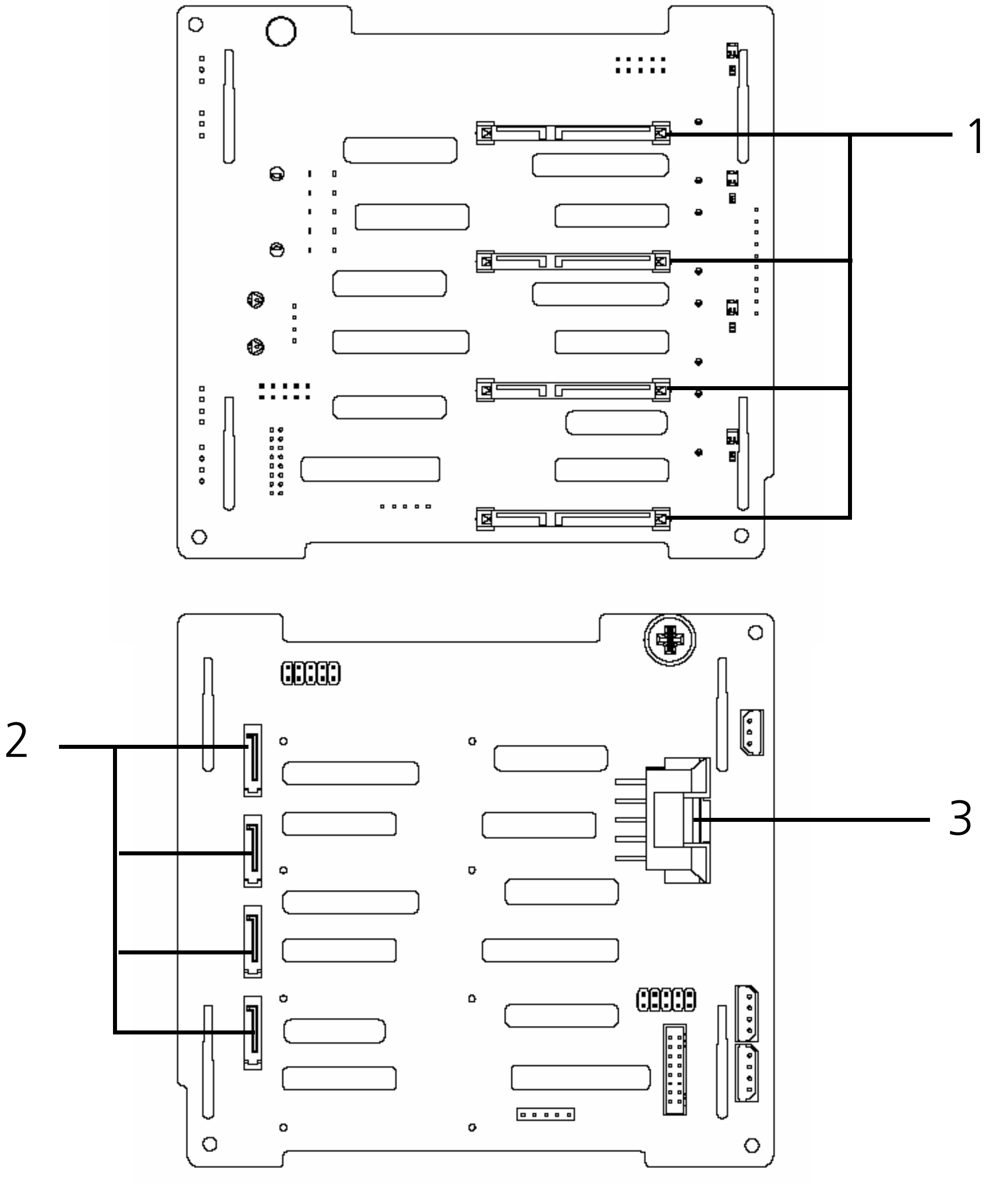




| Label | Description |
|---|---|
| 1 | 122-pin SAF-TE connector |
| 2 | 80-pin SCSI HDD connector |
| 3 | 68-pin SCSI HDD connector |
| 4 | SCSI HDD management cable connector (I$^2$C bus) |

| Label | Description |
|---|---|
| 5 | Power connector |

# Hot Plug HDD Cage backplane board layout (SATA)



| Label | Description |
|---|---|
| 1 | SATA HDD slot |

| Label | Description |
|---|---|
| 2 | SATA cable connector |
| 3 | HDD backplane power connector (10pin) |

# 2 System setup

This chapter gives you instructions on how to set up the system.  Procedures on how to connect peripherals are also explained.

# Setting up the system

## Preinstallation requirements

### Selecting a site

Before unpacking and installing the system, select a suitable site for the system for maximum efficiency. Consider the following factors when choosing a site for the system:

- Near a grounded power outlet
- Clean and dust-free
- Stable surface free from vibration
- Well-ventilated and away from sources of heat
- Secluded from electromagnetic fields produced by electrical devices such as air conditioners, radio and TV transmitters, etc.

### Checking the package contents

Check the following items from the package:

- Acer Altos G520 series system
- Acer Altos G520 series User’s guide
- Acer EasyBUILD™
- Acer Altos G520 series Accessory box
- System keys (attached to the rear panel of the system)

If any of the above items are damaged or missing, contact your dealer immediately.

Save the boxes and packing materials for future use.

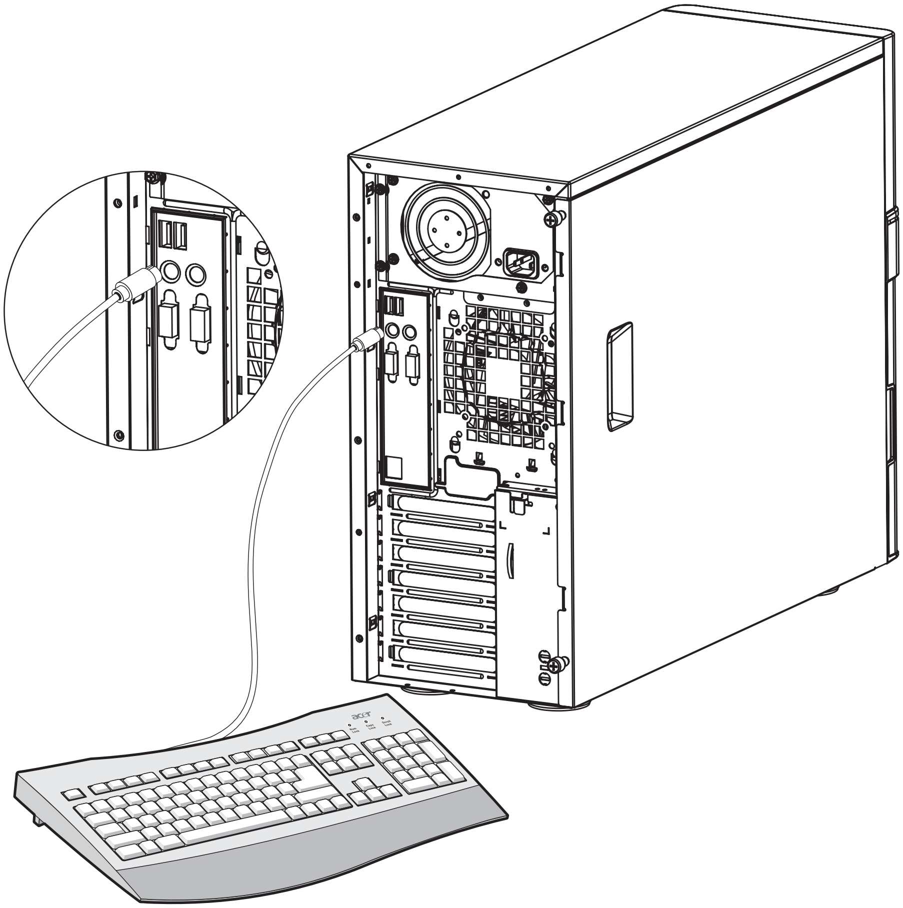
# Connecting peripherals

The system unit, keyboard, mouse, and monitor constitute the basic system. Before connecting any other peripherals, connect these basic peripherals first to test if the system is running properly.

**Note:** Unless otherwise indicated, all illustrations shown in this section show the Altos G520 server chassis.

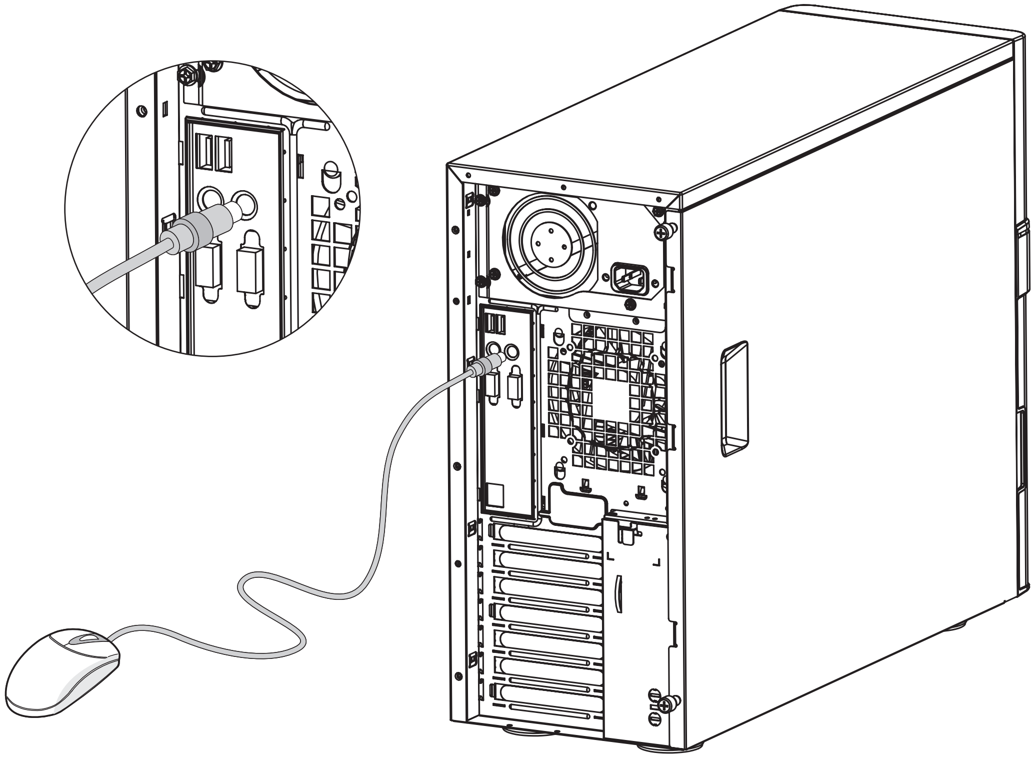
## To connect the PS/2 keyboard

Plug the keyboard cable into the PS/2 keyboard port ⌨ (purple port) located on the rear panel of the server.



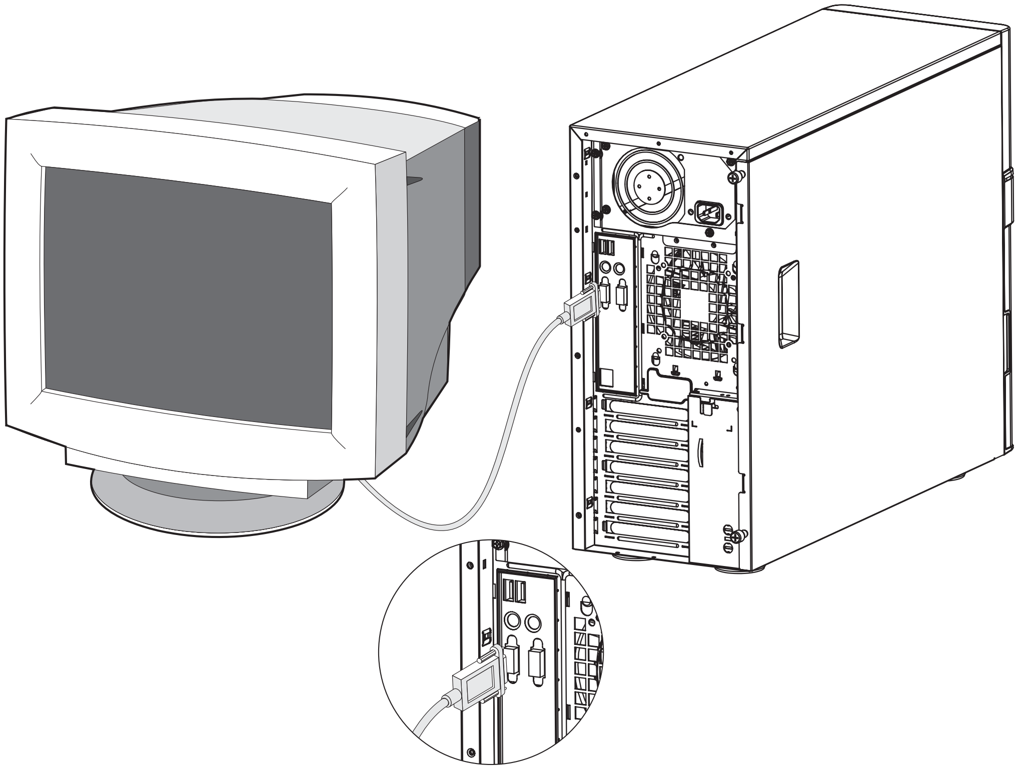
# To connect the PS/2 mouse

Plug the PS/2 mouse cable into the PS/2 mouse port 🖱 (green port) located on the rear panel of the server.



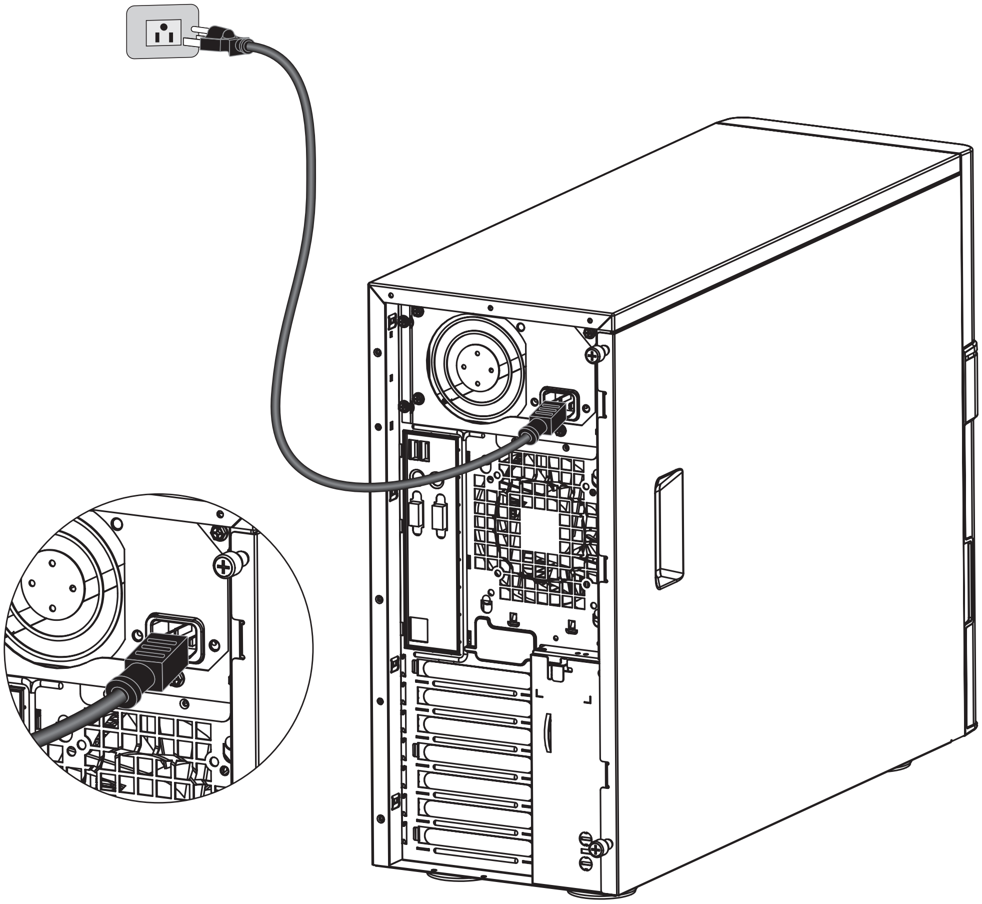
# To connect the VGA monitor

To connect the VGA monitor, simply plug the monitor cable into the VGA/monitor port 🖵 (blue port) located on the rear panel of the server.



# To connect the power cable

Plug the power cable into the power cable socket located on the rear panel of the server. Then plug the other end of the power cable into a power outlet. The figure below shows the Altos G520 Basic model.

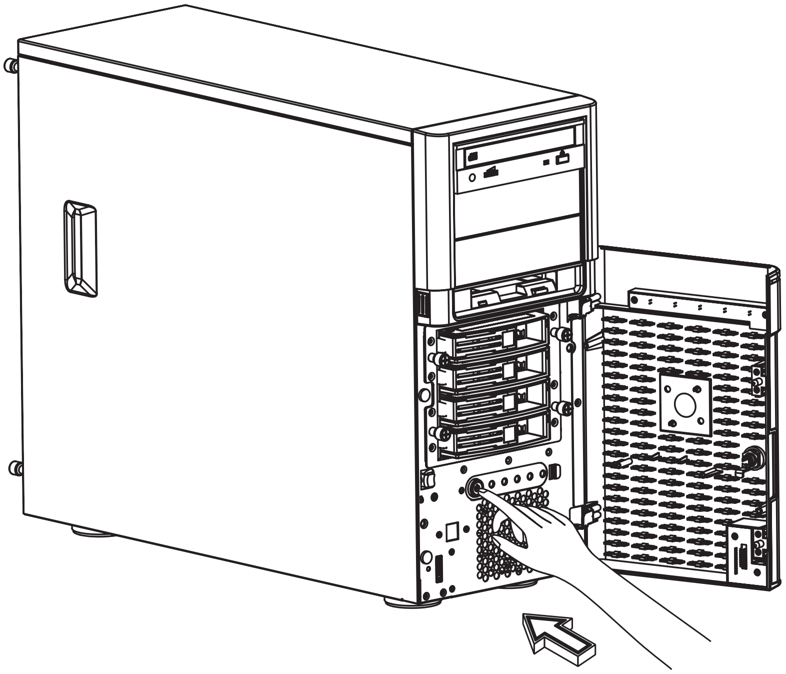


# Turning on the system

After making sure that you have properly set up the system and connected all the required cables, you can now power on the system.

To power on the system, press the power button on the front panel. The system starts up and displays a welcome message. After that, a series of power-on self-test (POST) messages appears. The POST messages indicate if the system is running well or not.

**Note:** The illustration below shows the Altos G520 server chassis.



**Note:** If the system does not turn on or boot after pressing the power button, go to the next section for the possible causes of the boot failure.

Aside from the POST messages, you can determine if the system is in good condition by checking if the following occurred:

- Power indicator on the front panel lights up (green)
- Num Lock, Caps Lock, and Scroll Lock indicators on the keyboard light up

# Power-on problems

If the system does not boot after you have applied power, check the following factors that might have caused the boot failure.

- The external power cable may be loosely connected.

  Check the power cable connection from the power source to the power cable socket on the rear panel.  Make sure that the cable is properly connected to the power source and to the power cable socket.
- No power comes from the grounded power outlet.

  Have an electrician check your power outlet.
- Loose or improperly connected internal power cables.

  Check the internal cable connections.  If you are not confident to perform this step, ask a qualified technician to assist you.

**Warning! Make sure all power cords are disconnected from the electrical outlet before performing this task.**

**Note:** If you have gone through the preceding actions and the system still fails to boot, ask your dealer or a qualified technician for assistance.

# Operating system configuration

The Acer Altos G520 series server comes with Acer EasyBUILD™ that allows you to conveniently install your choice of operating system. To start using EasyBUILD, follow the steps below.

1 Locate the EasyBUILD System CD included in the system package.

2 With your system powered on, gently press the optical drive Stop/Eject button.

3 When the disc tray slides open, insert the EasyBUILD System CD with the label or title side of the disc facing upward.

**Note:** When handling the disc, hold it by the edges to avoid smudges or fingerprints.

4 Gently press the disc down to make sure that it is properly inserted.

**Caution!** While pressing the disc, be careful not to bend the disc tray. Make sure that the disc is properly inserted before closing the disc tray. Improper insertion may damage both the disc and the optical drive.

5 Gently press the drive Stop/Eject button again to close the disc tray.

6 The Acer EasyBUILD sequence begins automatically. Follow all onscreen instructions.

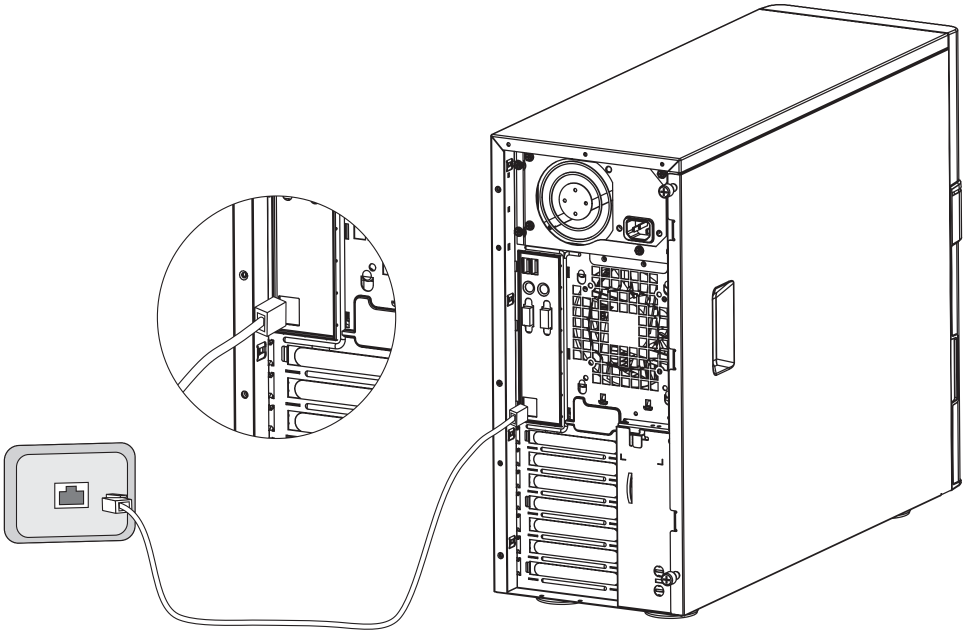
For more information, refer to the EasyBUILD™ Installation guide.

# Network connection

The server has one 10/100/1000 Mbps Gigabit Etherned LAN port located on the rear panel for fast network connection.

To connect to the network, simply plug the network cable into the Gigabit LAN port Gbit (gray port).

**Note:** The illustration below shows the Altos G520 Basic server chassis.

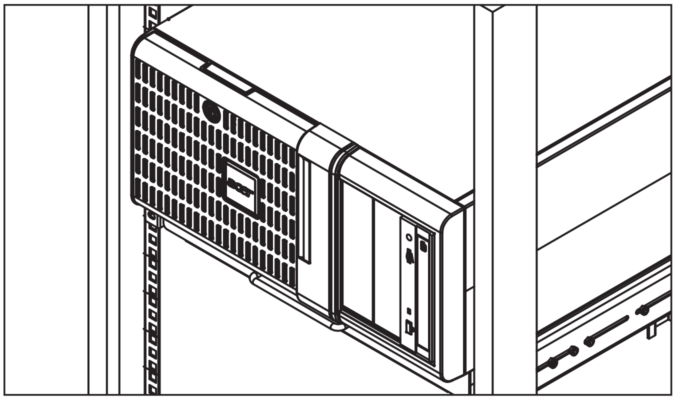


**Note:** Consult the operating system manual for information on how to configure the network setup.

# Tower-to-rack option

Aside from its tower configuration, the Acer Altos G520 series server can also be mounted in a rack-model position. A rack mount kit is available for customers who want to convert a tower-mounted system to rack-model design. To purchase a rack mount kit, contact your local Acer representative.

The figure below shows the server in a rack-mount position.



**Note:** The illustration above shows the Altos G520 server chassis. Rack Mount instructions are provided as an appendix to this manual.

# Turning off the system

To turn off the server, on the Windows taskbar click on the **Start** button, point to **Shut Down...**, select **Shut down** from the drop-down window then click on **OK**.  You can then turn off all peripherals connected to your server.

If you are unable to shutdown the server within Windows,  press and hold the power button for at least four seconds to force quit all applications and shut down.

# 3 Upgrading the system

This chapter discusses the precautionary measures and installation procedures you need to know when upgrading the system.

# Upgrading the system

Certain components of the server are upgradeable such as the drives, the CPU, the memory, and the expansion cards. However, for safety purposes, we do not recommend that you perform these upgrades yourself. If you want to replace or upgrade any of these components, contact your dealer or a qualified service technician for assistance.

**Important:** Observe the installation precautions described in the subsequent section when installing or removing a server component.

## Installation precautions

Before you install any server component, we recommend that you read the following sections. These sections contain important ESD precautions along with preinstallation and post-installation instructions.

### ESD precautions

Electrostatic discharge (ESD) can damage the processors, motherboard, disk drives, expansion boards, or other components. Always observe the following precautions before you install a server component:

1. Do not remove a component from its protective packaging until you are ready to install it.
2. Wear a wrist grounding strap and attach it to a metal part of the server before handling components. If a wrist strap is not available, maintain contact with the server throughout any procedure requiring ESD protection.

### Preinstallation instructions

Always observe the following before you install any component:

1. Turn off the system and all the peripherals connected to it.
2. Unplug all cables from the power outlets.

3 Open the system according to the instructions beginning on page 39.

4 Follow the ESD precautions described in this section when handling a server component.

5 Remove any expansion board(s) or peripheral(s) that block access to the DIMM socket or other component connector.

See the following sections for specific installation instructions on the component you want to install.

**Warning! Failure to properly turn off the server before you start installing components may cause serious damage. Do not attempt the procedures described in the following sections unless you are a qualified service technician.**

## Post-installation instructions

Observe the following after installing a server component:

1 See to it that all components are installed according to the described step-by-step instructions.

2 Reinstall any expansion board(s) or peripheral(s) that you have previously removed.

3 Reinstall the air baffle.

4 Reinstall the chassis panels.

5 Connect the necessary cables.

6 Turn on the system.

# Opening the server

**Caution!** Before you proceed, make sure that you have turned off your system and all peripherals connected to it. Read the "Preinstallation instructions" on page 37.

You need to open the server before you can install additional components. The front bezel and left side panel are removable to allow access to the system's internal components. Refer to the following sections for instructions.

## Before opening the server

Before opening the server, observe the following precautions:

1. Turn off the system and all the peripherals connected to it.
2. Unplug all cables from the power outlets.
3. Place the system unit on a flat, stable surface.

**Note:** The illustrations used in this section show the Altos G520 server chassis.

## To open the front bezel

A security lock secures the front bezel to protect your system unit against unauthorized access.

To open the front bezel:

1. Insert the key into the lock and turn it clockwise until it points to the unlocked icon 🔓.
2. Open the front bezel.

## To remove the front bezel

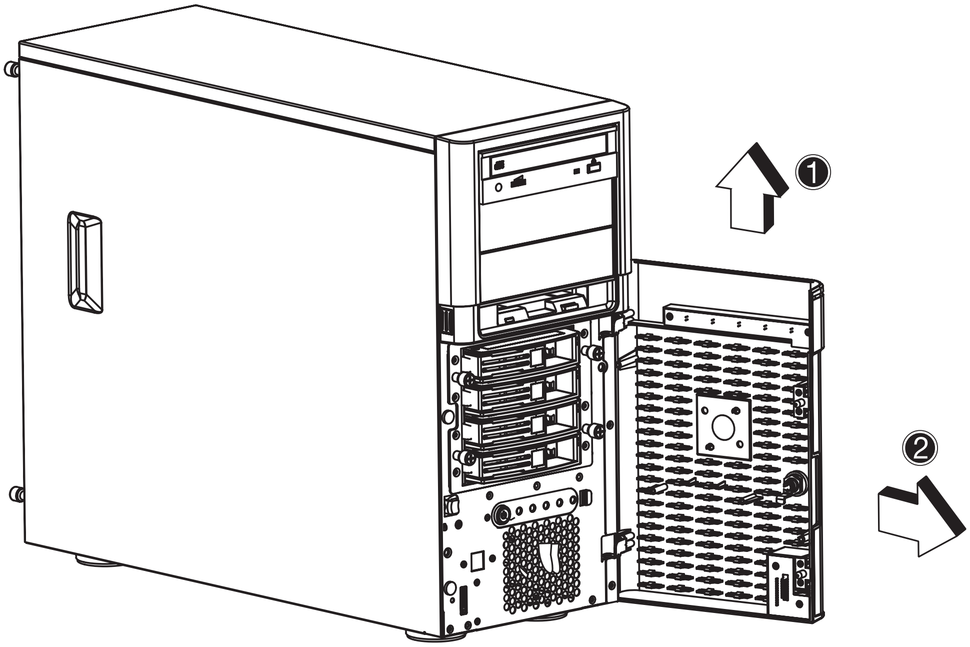
The front bezel is attached to the chassis by screwless hinges.

To remove the front bezel:

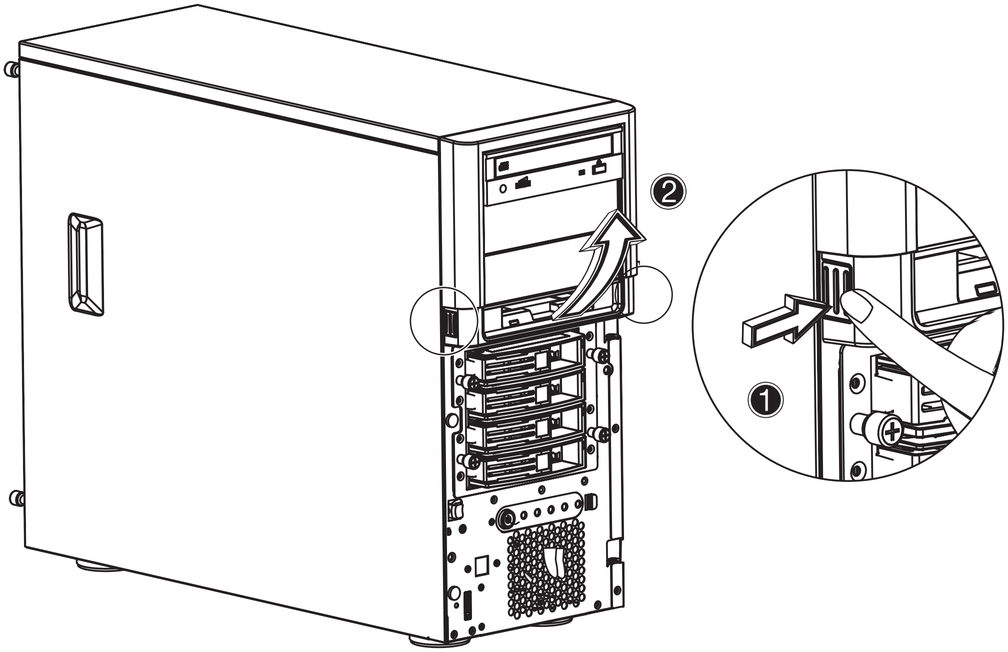
1. Unlock the bezel with the key (when necessary).

2 Open it approximately 90°.

3 Lift it up a little **(1)**, then move it away from the chassis **(2)**.



4 Remove the upper bezel assembly by pressing the two finger releases **(1)**, then lift from the bottom **(2)** and remove.



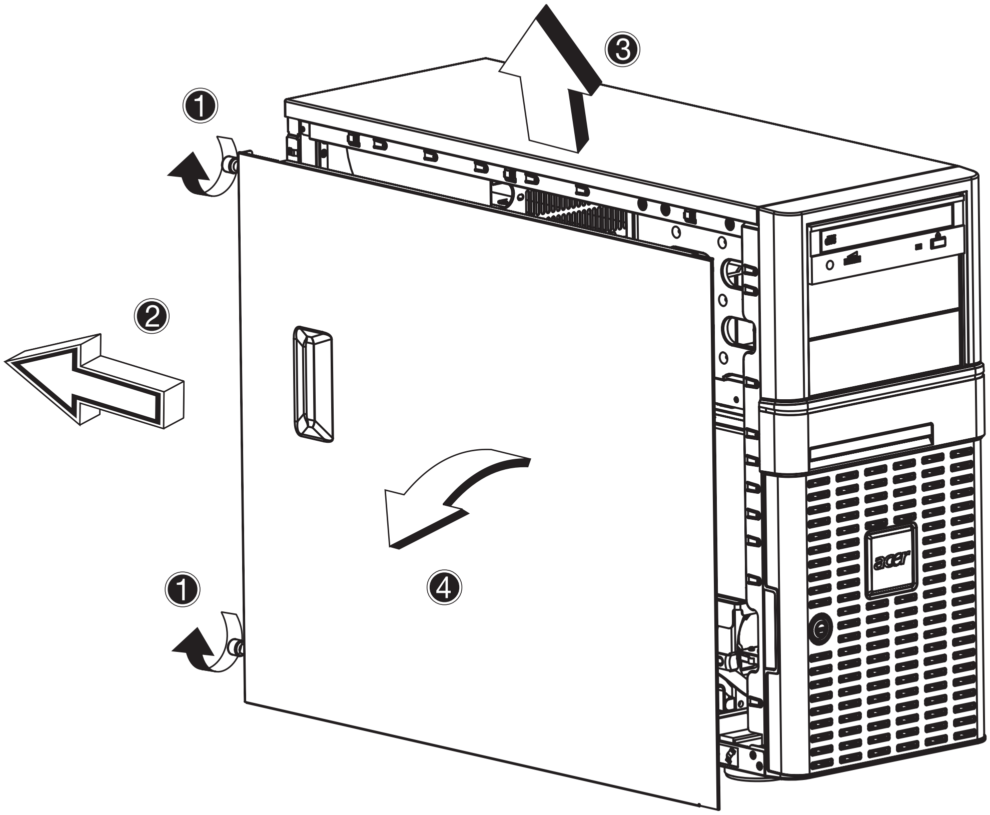
# To remove the side panel

The side panel is attached to the server by two (non-removeable) thumbscrews.

To remove the side panel:

1 Loosen the thumbscrews located at the end of the left panel closest to the rear panel **(1)**.

2 Slide the left panel slightly rearward **(2)**, then upward **(3)** before detaching it from the chassis **(4)**.



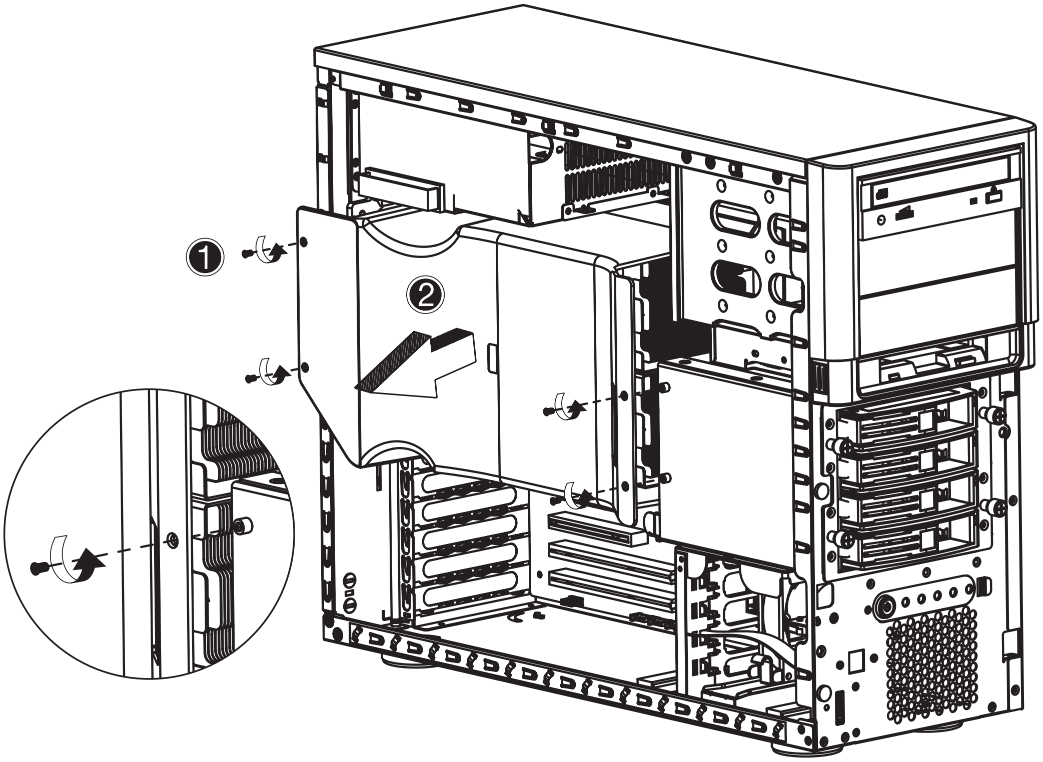
To remove the air baffle

Remove the air baffle to allow easy access to the motherboard and system components.

Follow the steps below to remove the air baffle:

1 Remove the two screws (four total) at either end of the air baffle **(1)**. Save the screws for later use.

2 Pull out the air baffle to remove it from the chassis **(2)**.



**Caution!** After completing the component upgrade/replacement procedures, do not forget to reinstall the air baffle before replacing the chassis panels. Failure to do so will reduce the system's cooling efficiency which can adversely affect performance or cause damage due to overheating.

# Configuring the Hot Plug HDD cage

This section includes instructions for removing and installing the Hot Plug HDD cage as well as procedures on how to install a hard disk into the cage's hard disk carrier.

**Note:** The Hot Plug HDD cage feature is only applicable to the Altos G520 model.

## To remove the Hot Plug HDD cage

**Important:** Before detaching the Hot Plug HDD cage from the chassis, make sure to first remove all hard disks from their carriers. For instructions, refer to the succeeding section.

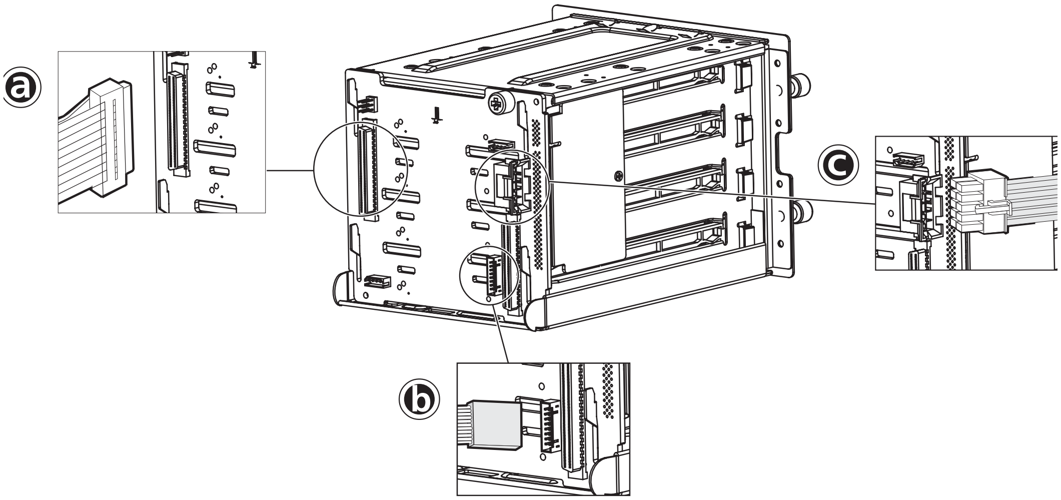
1 Remove the two parts of the front bezel, the side panel and the air baffle. Refer to the previous section for detailed intructions.

2 Disconnect the following cables from the cage (SCSI):

  a SCSI cable

  b SCSI HDD 6 pin management cable

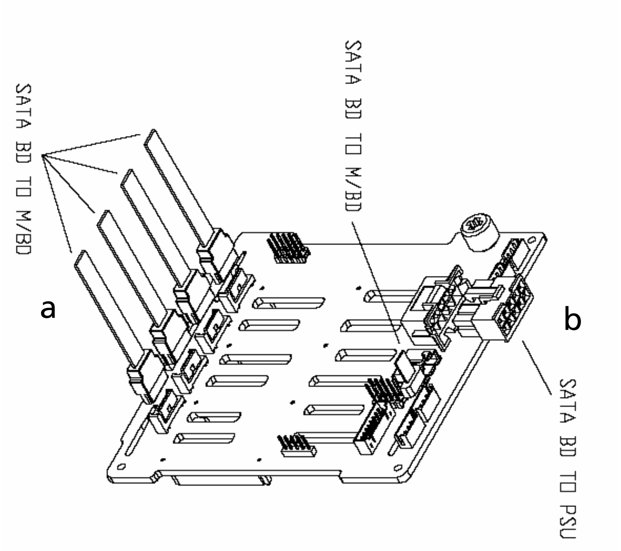
  c SCSI HDD power cable



3 Disconnect the following cables from the cage (SATA):

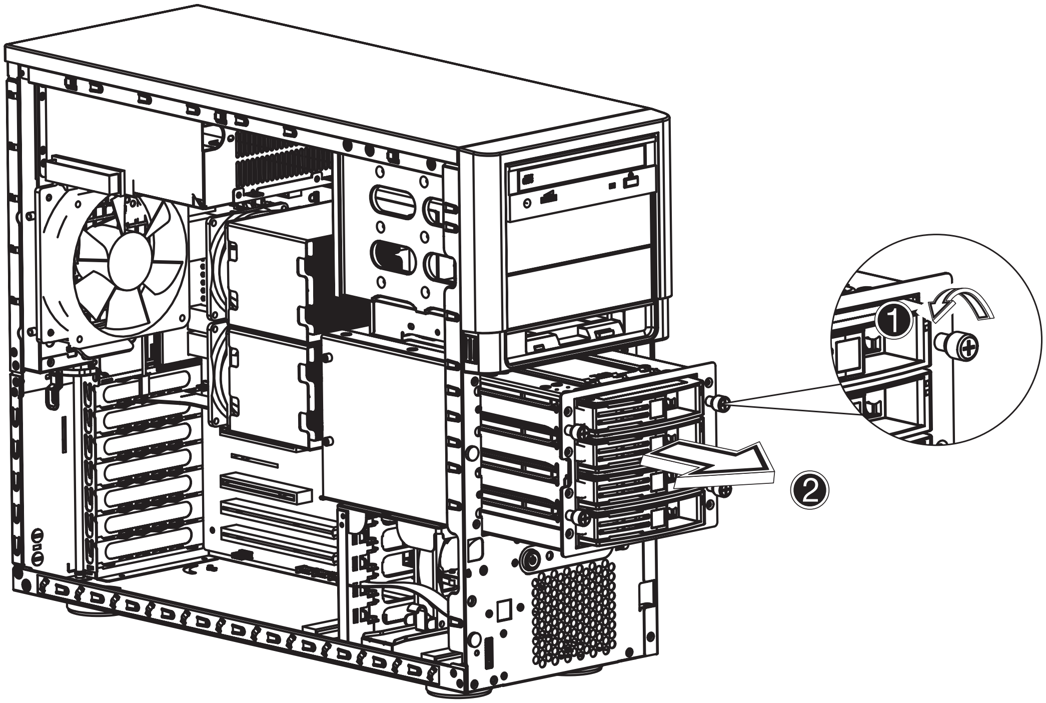
  a SATA cable

b SATS HDD power cable


SATA BD TO M/BD
a
SATA BD TO M/BD
b
SATA BD TO PSU

4 Loosen the four thumbscrews that secure the cage to the chassis **(1)**.

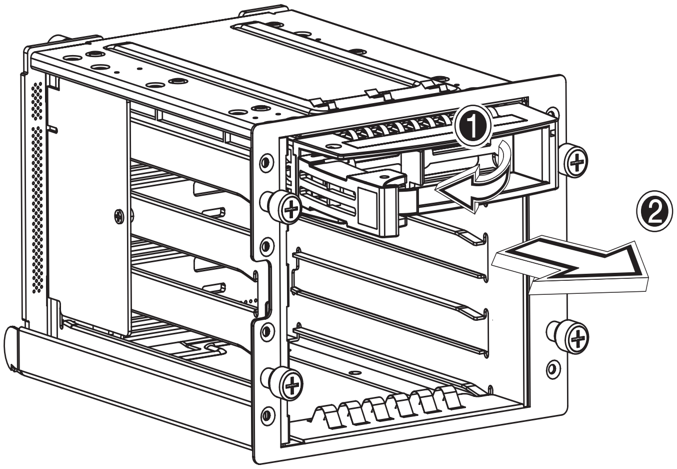
5 Pull the cage from the chassis **(2)**.



# To install a hard disk into the carrier

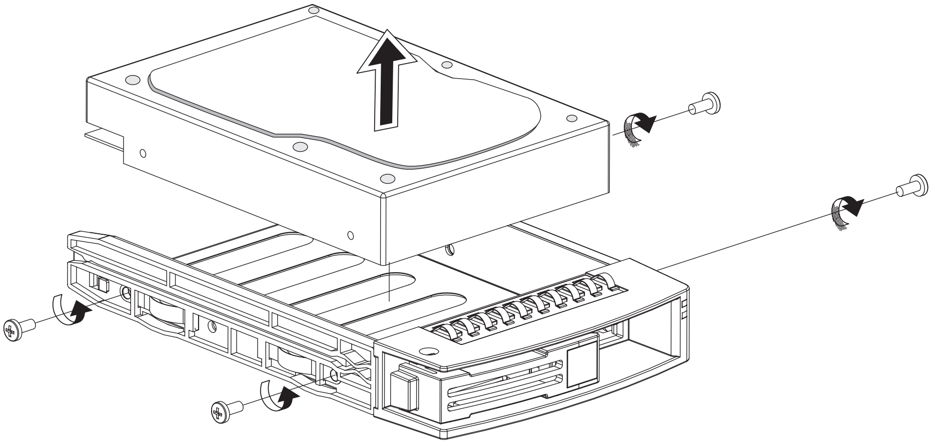
**Note:** You need not remove the Hot Plut HDD cage from the chassis to install a hard disk into the cage's hard disk carrier.

1 Press the HDD release lever **(1)**, then pull the hard disk carrier from the cage **(2)**.

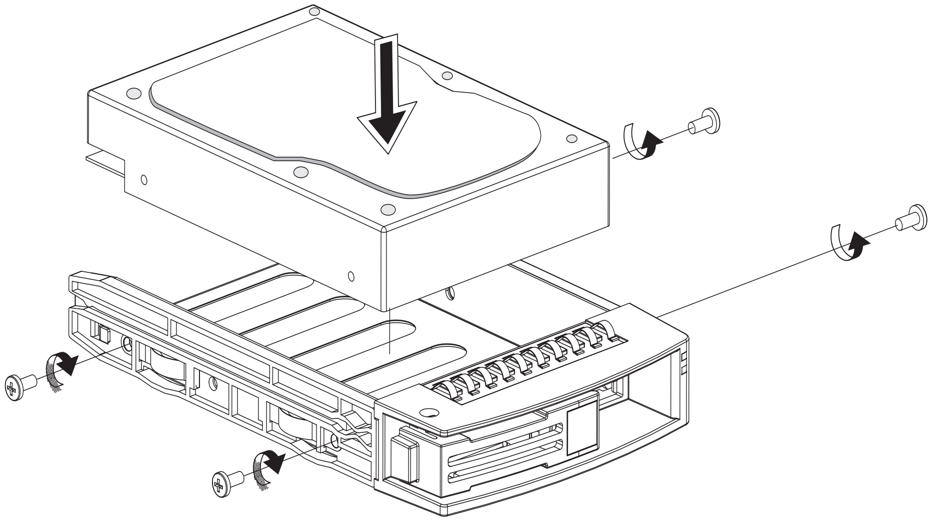


2 Remove the four screws to open the hard disk carrier. Keep the screws for later use.

3 When applicable, remove any previously installed hard disk.



4 Install a hard disk in the hard disk carrier then secure it with the four screws you removed earlier.



5 Insert the hard disk carrier into the cage with the lever fully extended.

6 Push the lever back until it clicks into place. Make sure that the drive is properly inserted before closing the lever.

# To install the Hot Plug HDD cage

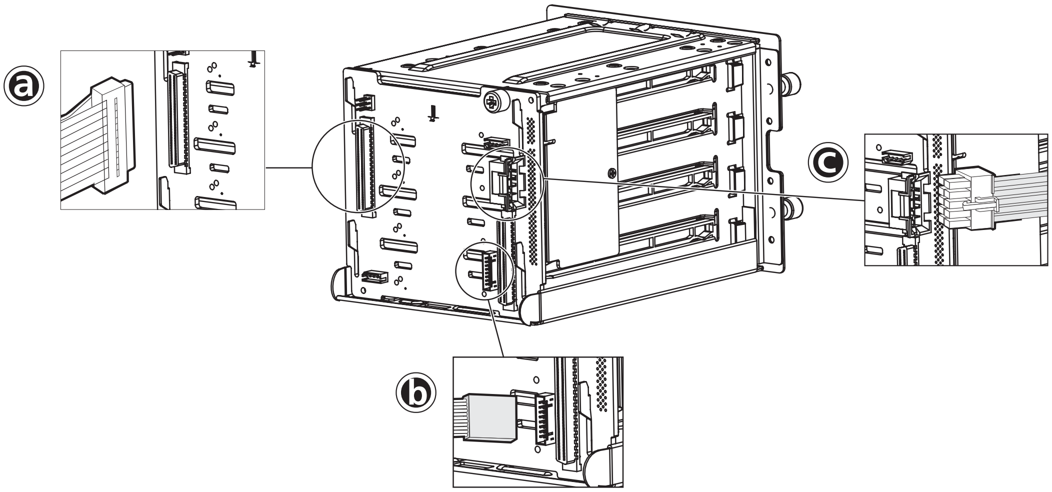
1 Detach the chassis panels and remove the air baffle.

2 Connect the following cables to the backplane board (SCSI):

  a SCSI cable

  b SCSI HDD 6 pin management cable

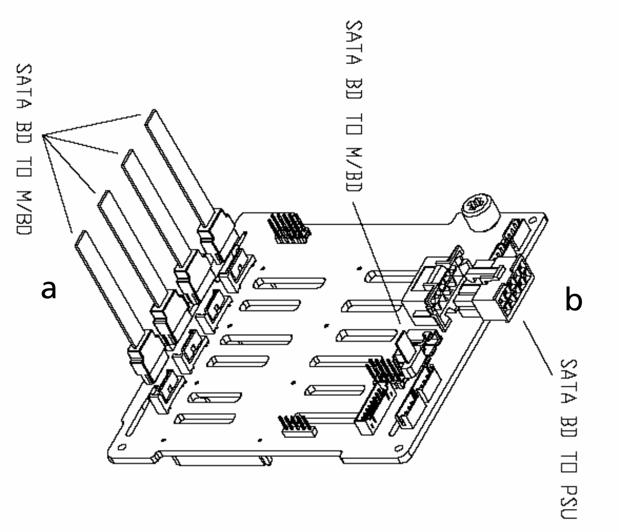
c SCSI HDD power cable



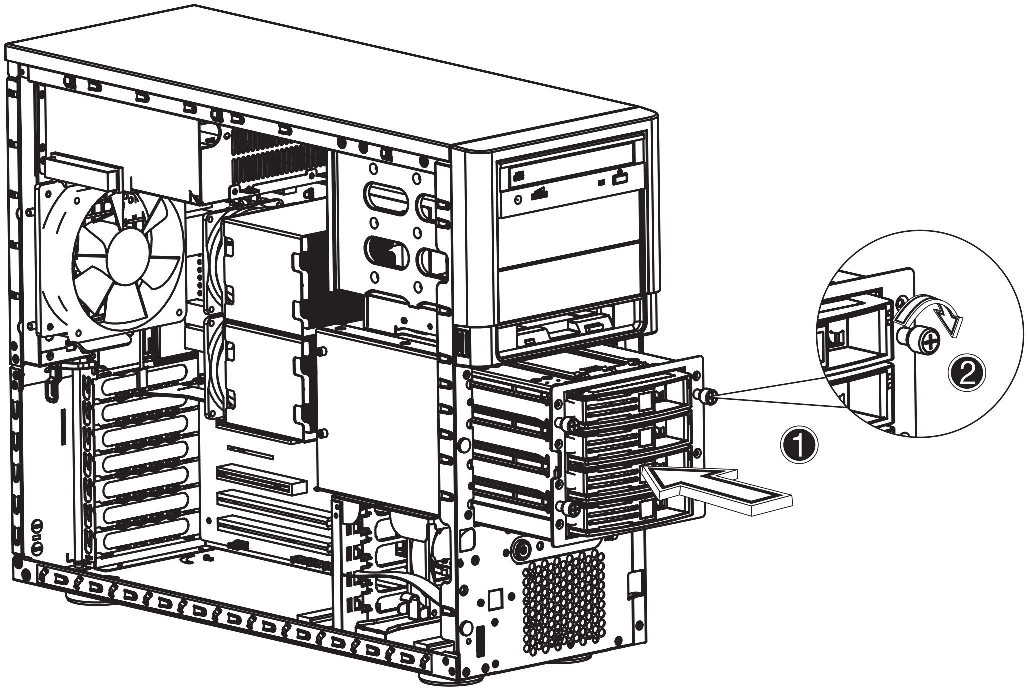
3 Connect the following cables to the backplane board (SATA):

a SATA cable

b SATA HDD power cable


SATA BD TO M/BD
SATA BD TO M/BD
a
b
SATA BD TO PSU

4 Insert the Hot Plug HDD cage into the housing **(1)**, then tighten the four thumbscrews to secure it to the chassis **(2)**.



5 Attach the other end of these cables to the corresponding connectors on the mainboard.

Refer to “Mainboard layout” on page 14 for the location of the connectors.

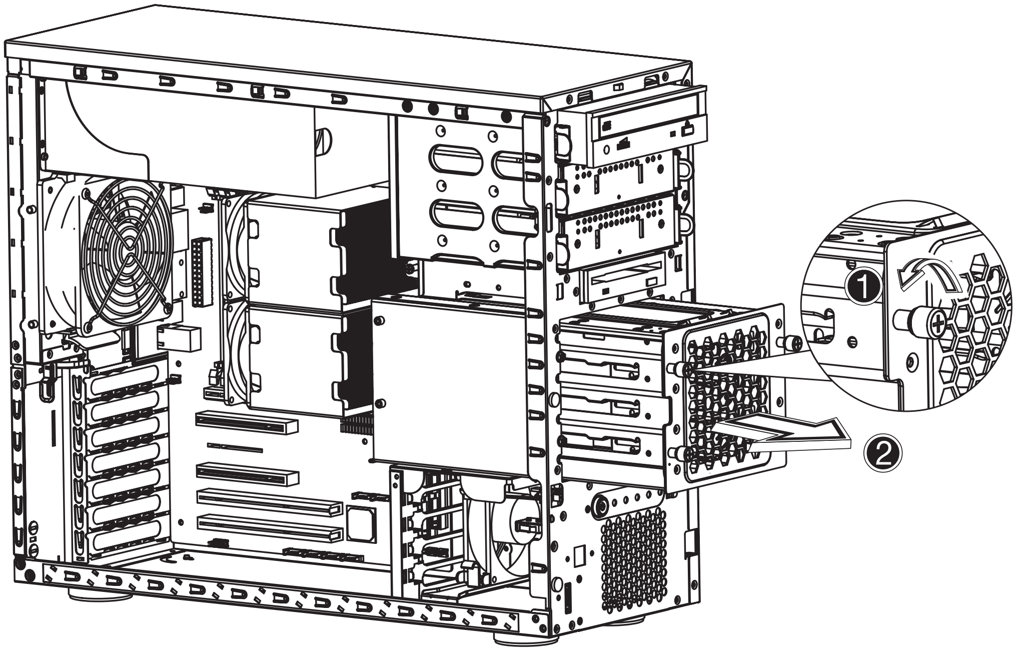
6 Reinstall the air baffle and the chassis panels.

# Configuring the non-Hot Plug HDD cage

This section includes instructions for removing and installing the non-Hot Plug HDD cage as well as procedures on how to install a hard disk into the cage.

## To remove the cage

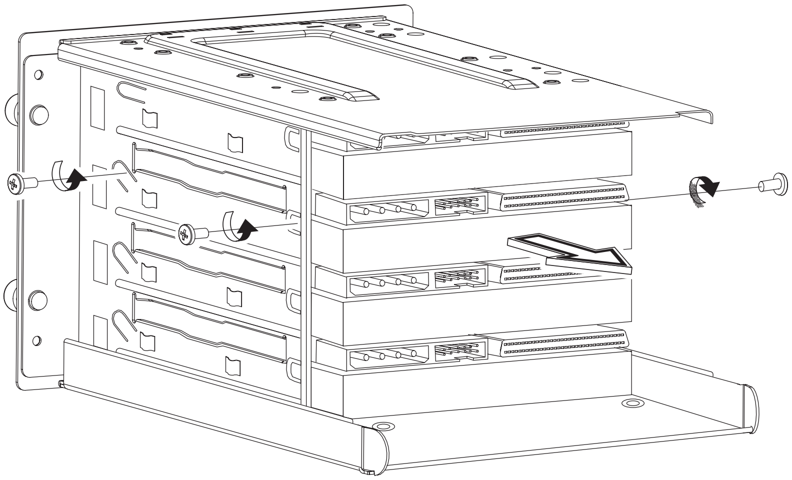
1. Turn off the system and all the peripherals connected to it.
2. Unplug all cables from the power outlets.
3. Place the system on a flat, stable surface.
4. Remove the front bezel, inner front panel, side panel, and air baffle.
5. Disconnect the HDD bus cable and the HDD power cable from the hard disk drive.
6. Loosen the four thumbscrews that secure the cage to the chassis **(1)**.



7. Removet the cage from the chassis **(2)**.

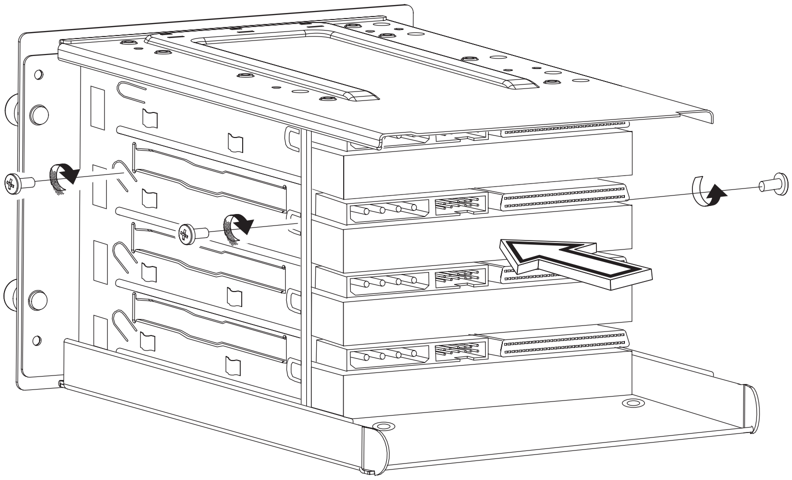
# To install a hard disk into the cage

1. Remove the HDD cable cage from the chassis. Refer to the instructions in the preceding section.
2. Remove the four screws that secure a previously installed hard disk to the cage then pull the HDD out.



3. Install a new hard disk into the cage then secure it with the four screws you removed in the previous step.

**Note :** Make sure the hard disk is tightened by screws on the cage.



4. Reinstall the HDD cable cage to the chassis. Refer to the instructions in the subsequent section.

## To install the cage

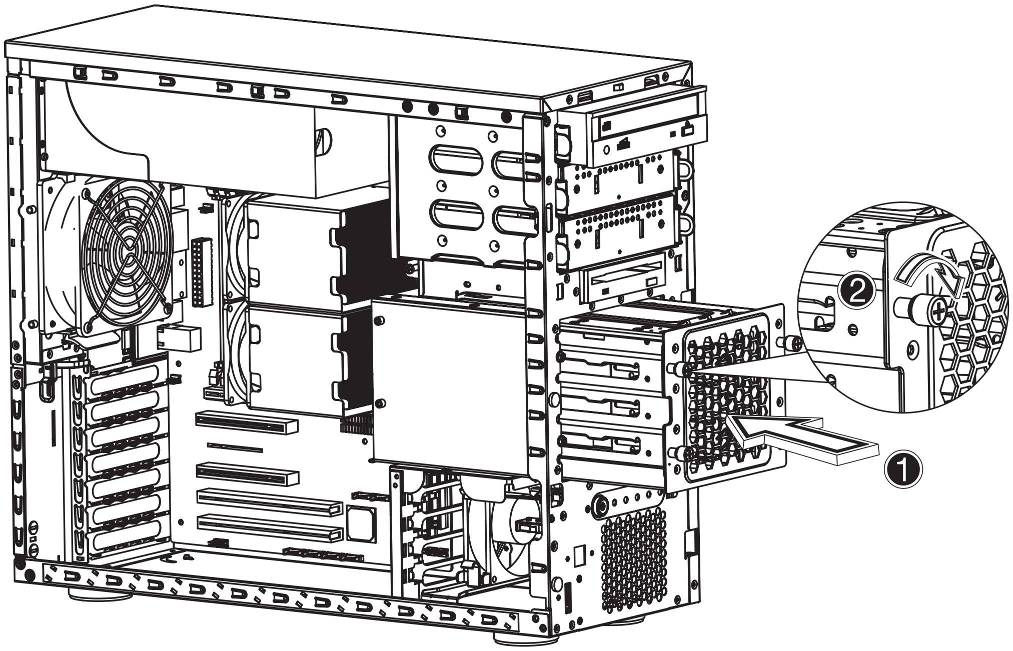
1 Turn off the system and all the peripherals connected to it.

2 Unplug all cables from the power outlets.

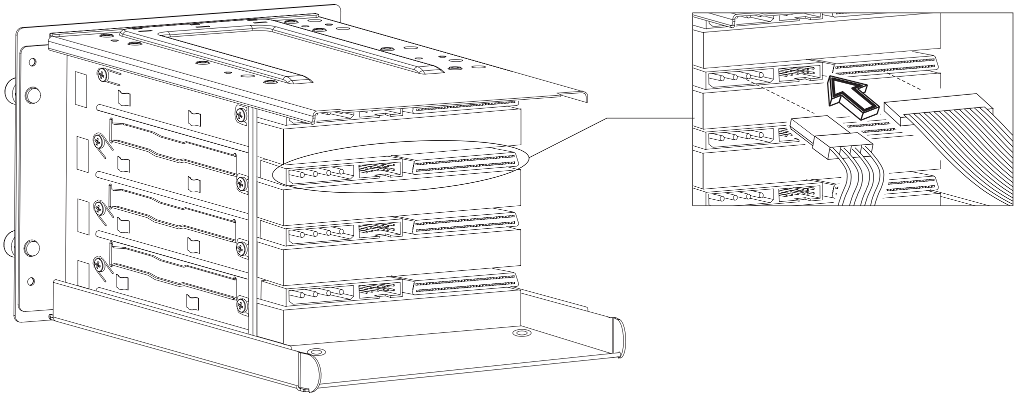
3 Place the system unit on a flat, stable surface.

4 Remove the front bezel, side panel and air baffle.

5 Insert the cage into the housing **(1)**, then tighten the four thumbscrews to secure it to the chassis **(2)**.



6 Connect the HDD bus cable and the power cable to the hard disk drive.



7 Reinstall the air baffle and the chassis panels.

# Installing and removing storage devices

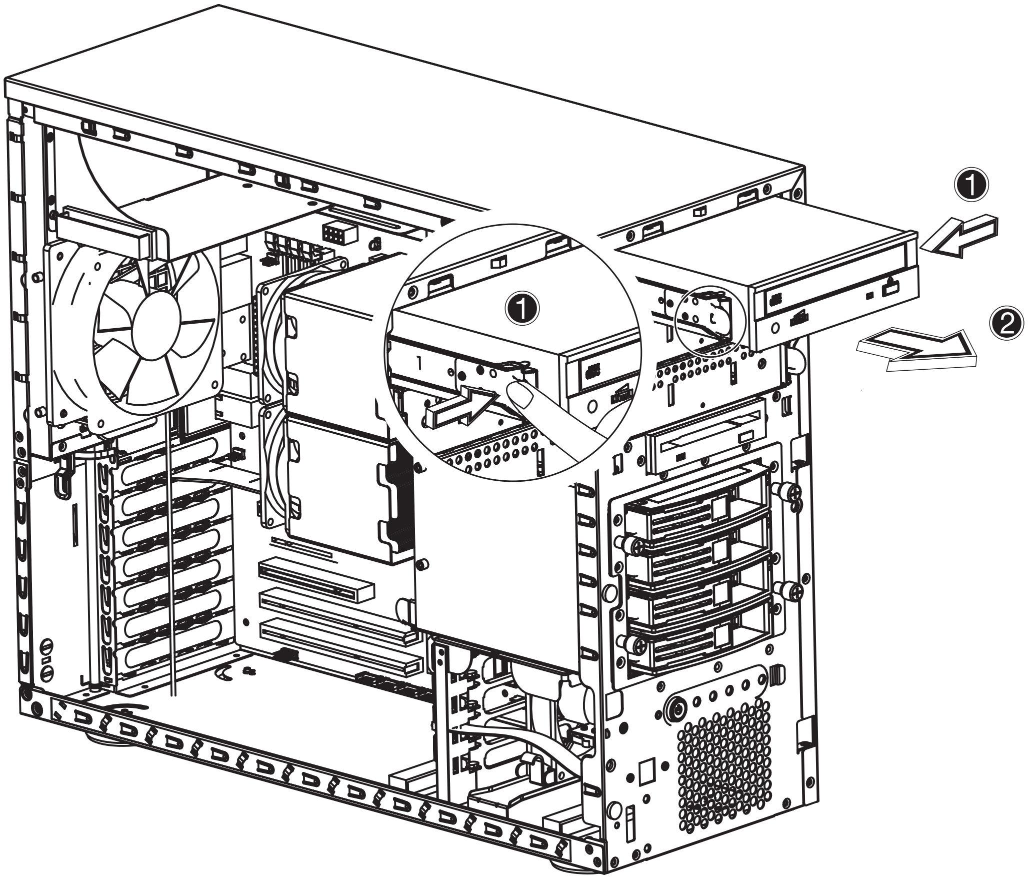
The system supports one 3.5-inch and three 5.25-inch internal storage devices. The system comes pre-installed with a floppy drive and a CD-ROM drive. The two empty 5.25-inch half-height bays allow you to install additional drives such as another optical drive or a tape drive.

## To remove a 5.25-inch storage device

1 Observe the ESD precautions and pre-installation procedures described on page 37.

2 Disconnect the power and bus cables from the old drive.

3 Press the tool-less locking tabs on each side of the CD-ROM drive **(1)** before pulling it from the chassis **(2)**.

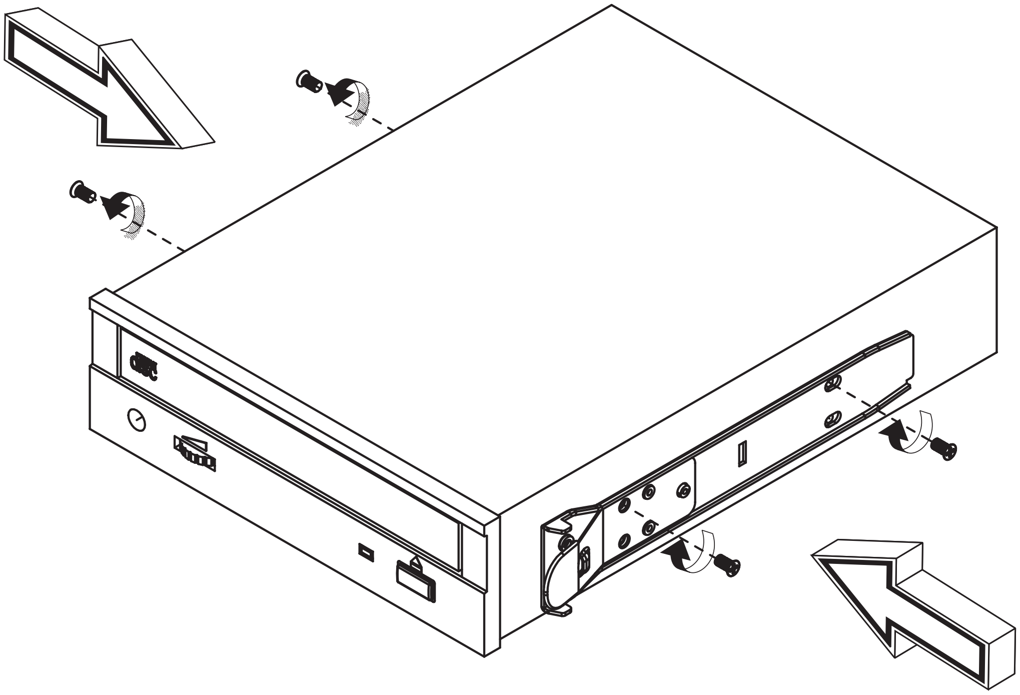


# To install a 5.25-inch storage device

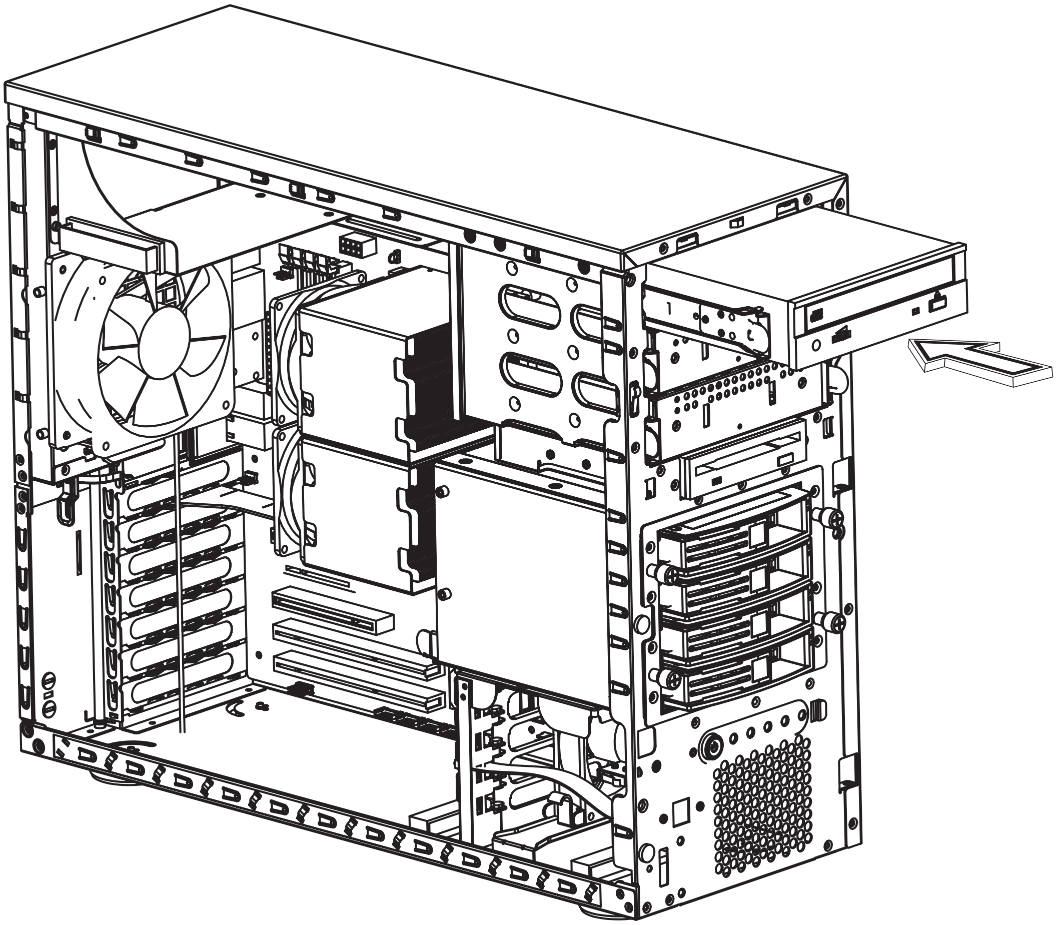
Prior to inserting any device into a 5.25 inch device bay, you must attach mounting rails to it.

**Note :** Contact you local Acer dealer or authorized service center to purchase the 5.25 inch device mounting kit.

1 Attach the rails to the 5.25inch device with four screws (included in the kit).



2 Insert the CD-ROM drive into the drive bay until the locking tabs click.



3 Connect the power and bus cables to the new drive.

4 Observe the post-installation instructions described on page 38.

# Upgrading the CPU

This section includes instructions for removing and installing a CPU.

## To remove a CPU with heatsink

Before installing a new CPU in a socket, remove first any previously installed CPU from that socket.

**Important:** Before removing a CPU from the mainboard, make sure to create a backup file of all important data.

1 Observe the ESD precautions and pre-installation procedures described on page 37.

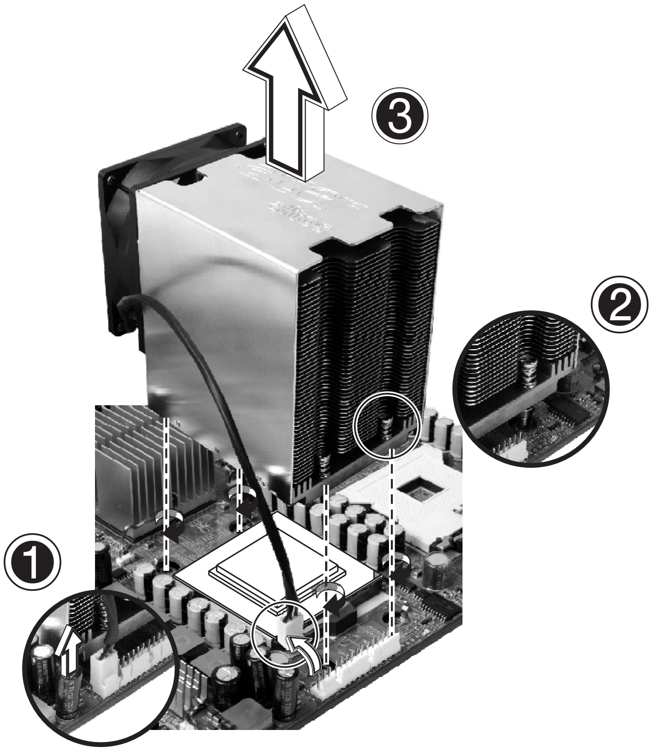
2 Locate the CPU sockets on the mainboard.

3 To detach the CPU from its socket, follow the steps below:

Unplug the CPU fan from the mainboard **(1).**

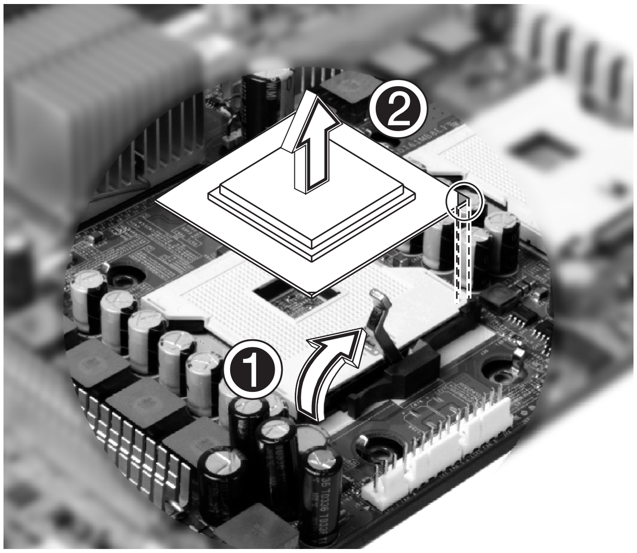
Using a screwdriver, loosen the screws that hold the heatsink assembly in place **(2).**

Remove the heatsink **(3).**



Lift the CPU locking lever until it is fully extended **(1)**.

Gently unseat and pull the CPU from the socket **(2)**.



**Warning!** The heatsink becomes very hot when the system is on. **NEVER** touch the heatsink with any metal or with your hands.

## Processor Sequence

If only one CPU is to be installed, it must be installed in the CPU 1 socket, see “CPU socket 1” in “Mainboard layout” for more information. In this case, the CPU 2 socket no longer requires a termination module. When installing multiple processors, install CPU 1 first, then CPU 2.

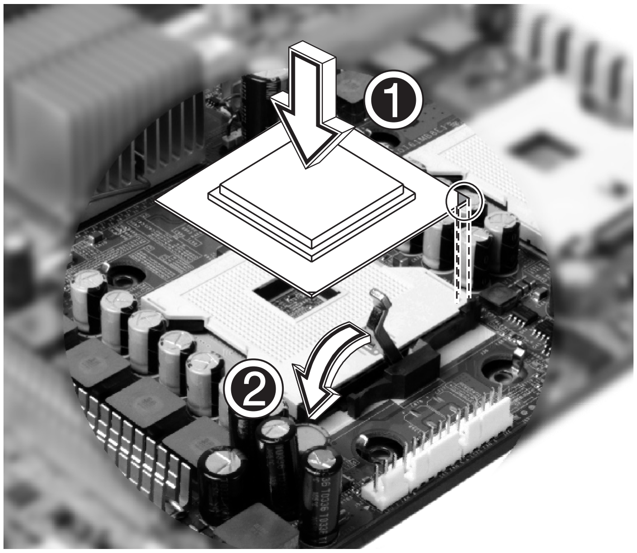
## To install a CPU with heatsink

1. Observe the ESD precautions and pre-installation procedures described on page 37.
2. Locate the CPU socket on the mainboard.
3. Align the CPU to its socket, making sure that pin 1 (indicated by the notched corner) of the CPU connects to hole 1 of the socket (on the bottom right corner).

4 To install the CPU to its socket, follow the steps below:

Insert the CPU into the socket **(1).**

Lower the CPU locking lever to secure the CPU **(2).**

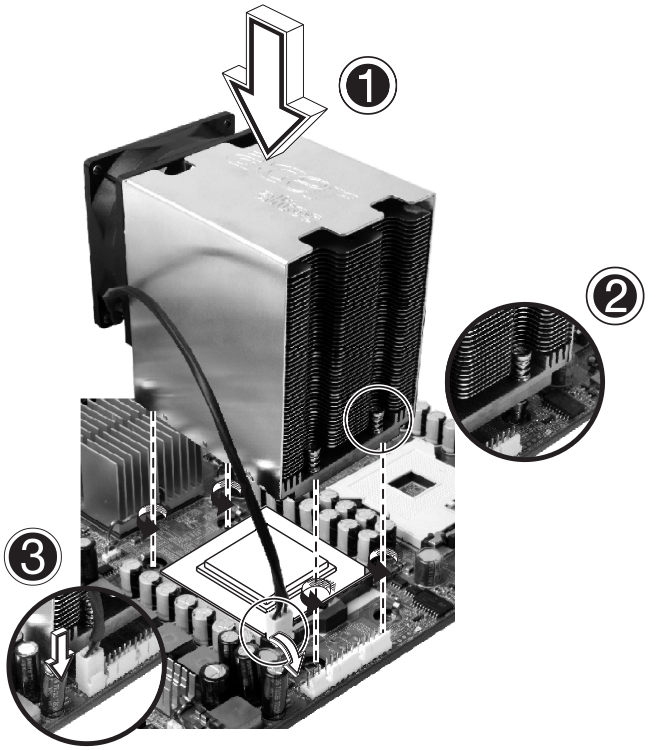


5 Replace the heatsink on top of the CPU **(1).**

Using a screwdriver, loosen the screws that hold the heatsink assembly in place **(2)**.

Plug the CPU fan in to the mainboard **(3).**

For help locating the CPU fan connectors on the mainboard, see "Mainboard layout" on page 14.



6 Observe the post-installation instructions described on page 38.

# Upgrading the system memory

This section includes instructions for removing and installing a memory module.

The Server Boards Altos G520 each provides four DDR266 / DDR333 DIMM sites in two DIMM banks. The maximum memory capacity is 8GB for either DDR266 or DDR333 memory. Memory DIMM technologies supported are: 128MB, 256MB, 512MB, 1 GB and 2 GB.

The minimum memory configuration is one DIMM, installed in DIMM socket 1B (the socket farthest from the processors). However, for optimum performance and dual-channel interleave operation, a minimum of two DIMMs should be installed. DIMMs on channel A are paired with DIMMs on channel B to configure 2-way interleaving.

Both DIMMS in Bank 1 (DIMM1B and DIMM1A) must be populated before any DIMMs are installed in Bank 2 (DIMM2B and DIMM2A). Bank 2 must be populated in pairs.

Both DIMMs in a bank must be identical (same manufacturer, CAS latency, number of rows, columns and devices, timing parameters etc.). Although DIMMs within a bank must be identical, the BIOS supports various DIMM sizes and configurations allowing the banks of memory to be different.

**Note:** Dual-channel memory requires symmetrical memory modules using the same density (e.g. 256MB,512MB), bus width (e.g. x8 ,x16) and granule technology (e.g. 256M-bit, 512M-bit)

The mixing of DDR266 and DDR333 memory is supported on the Server Boards Altos G520. However, when mixing DIMM types, DDR333 will be treated as DDR266.

**Warning!** Functionality issues may be encountered if mixed memory types are installed on the same server board. DIMM modules of identical type, banking and stacking technology, and vendor should be installed in the Altos G520.

# To remove a DIMM

Before installing a new DIMM in a socket, remove first any previously installed DIMM from that socket.

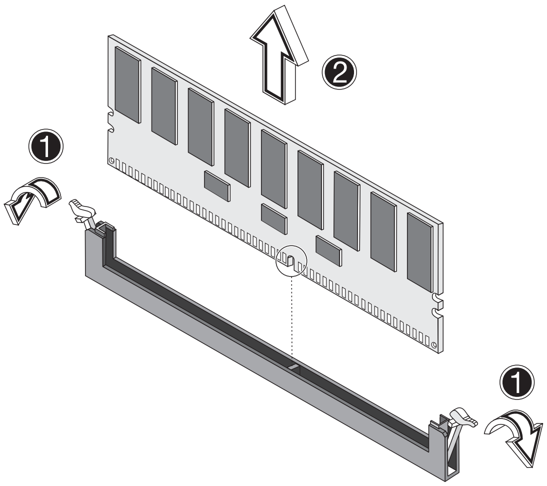
**Important:** Before removing any DIMM from the mainboard, make sure to create a backup file of all important data.

1 Observe the ESD precautions and pre-installation procedures described on page 37.

2 Locate the DIMM slots on the mainboard.

3 Press the holding clips on both sides of the socket outward to release the DIMM **(1)**.

4 Gently pull the DIMM upward to remove it from the socket **(2)**.



**Note:** Place your forefingers on the top of the DIMM before pressing the holding clips to gently disengage the DIMM from the socket.

# To install a DIMM

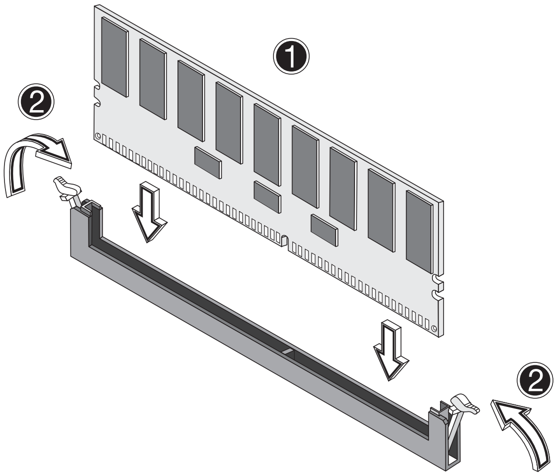
1 Observe the ESD precautions and pre-installation procedures described on page 37.

2 Locate the DIMM slots on the mainboard.

3 Open the clips on the socket.

4 Align then insert the DIMM into the socket **(1).**

5 Press the holding clips inward to lock the DIMM in place **(2).**



**Note:** The DIMM socket is slotted to ensure proper installation. If you insert a DIMM but it does not fit easily into the socket, you may have inserted it incorrectly. Reverse the orientation of the DIMM and insert it again.

6 Observe the post-installation instructions described on page 38.

## Reconfiguring the system memory

The system automatically detects the amount of memory installed. Run the BIOS setup to view the new value for total system memory and make a note of it.

# Replacing the Backup Battery

The lithium battery on the server board powers the RTC for up to 10 years in the absence of power. When the battery starts to weaken, it loses voltage, and the server settings stored in CMOS RAM in the RTC (for example, the date and time) may be wrong. Contact your customer service representative or dealer for a list of approved devices.

1 Observe the safety and ESD precautions above and at the beginning of this book.

2 Turn off all peripheral devices connected to the server. Turn off the server.

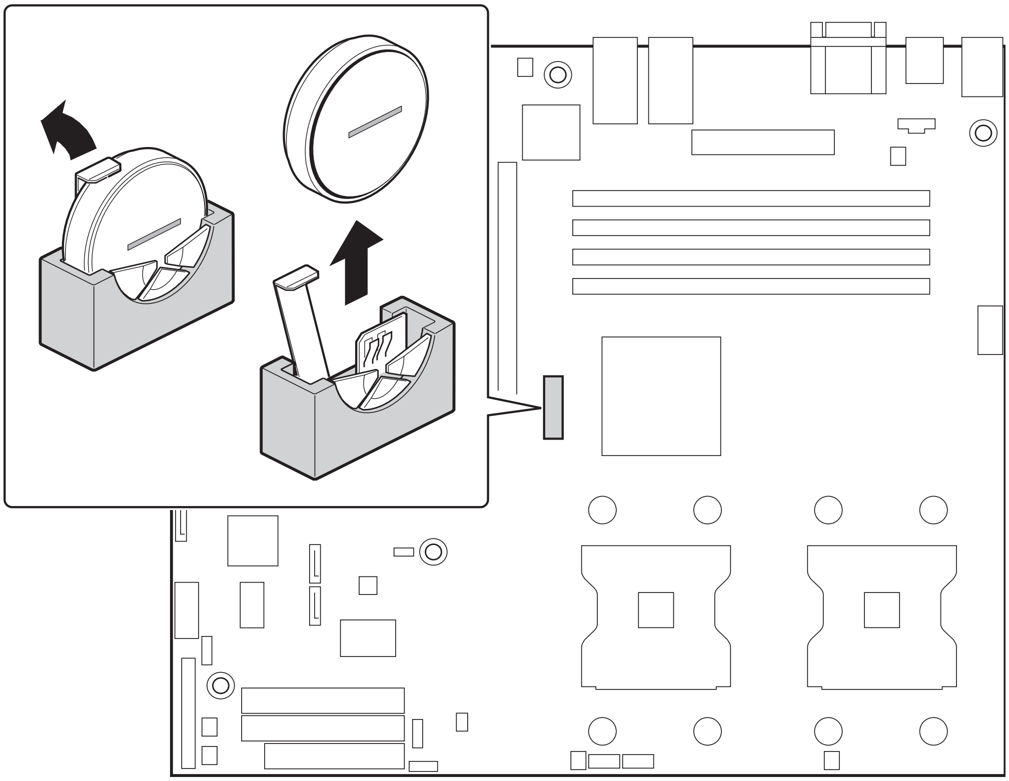
3 Remove power from your system by unplugging the AC power cord.

4 Remove the chassis cover.

5 Locate the battery.

6 Gently pull back on the metal tab to release the battery.

7 Remove the battery from its socket. See "Battery" in "Mainboard layout"



8 Dispose of the battery according to local ordinance.

9 Remove the new lithium battery from its package, and, being careful to observe the correct polarity, insert it in the battery socket.

10 Reconnect or replace any internal components you needed to disconnect or remove.

11 Replace the server's cover. Reconnect any external components you needed to disconnect.

12 Attach the AC power cord.

13 Run Setup to restore the configuration settings to the RTC.

**WARNING!** Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

# Installing an expansion card

This section explains how to install an expansion card. The onboard expansion slots support PCI (Peripheral Component Interconnect) cards.

**Note :** The BIOS setup automatically detects and assigns resources to the new device (applicable only to Plug-and-Play expansion cards).

## To install an expansion card

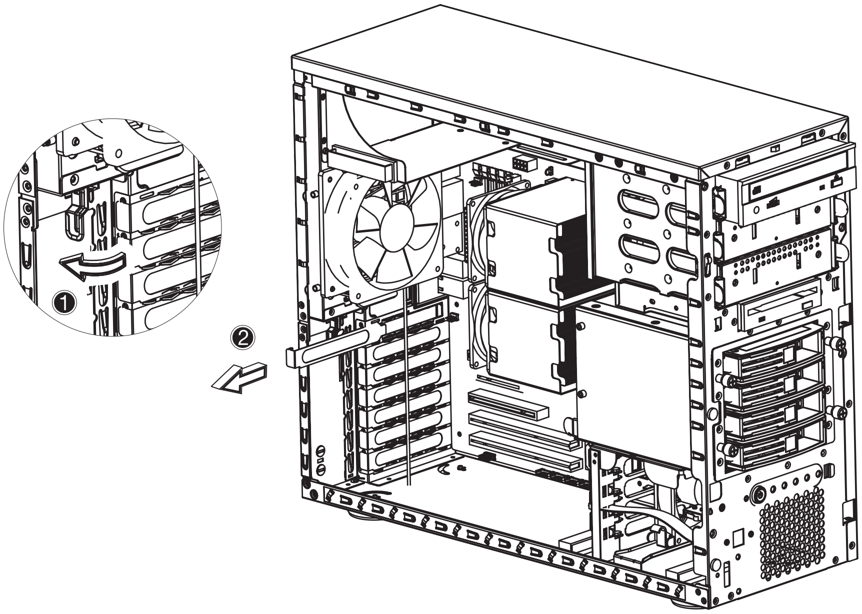
**Note:** The illustrations used in this section show the Altos G520 server chassis.

1 Observe the ESD precautions and pre-installation procedures described on page 37.

2 Locate an empty expansion slot on the mainboard.

3 With your finger, open the expansion card slot lock on the rear panel **(1)**.

4 Pull out the card bracket **(2)**.

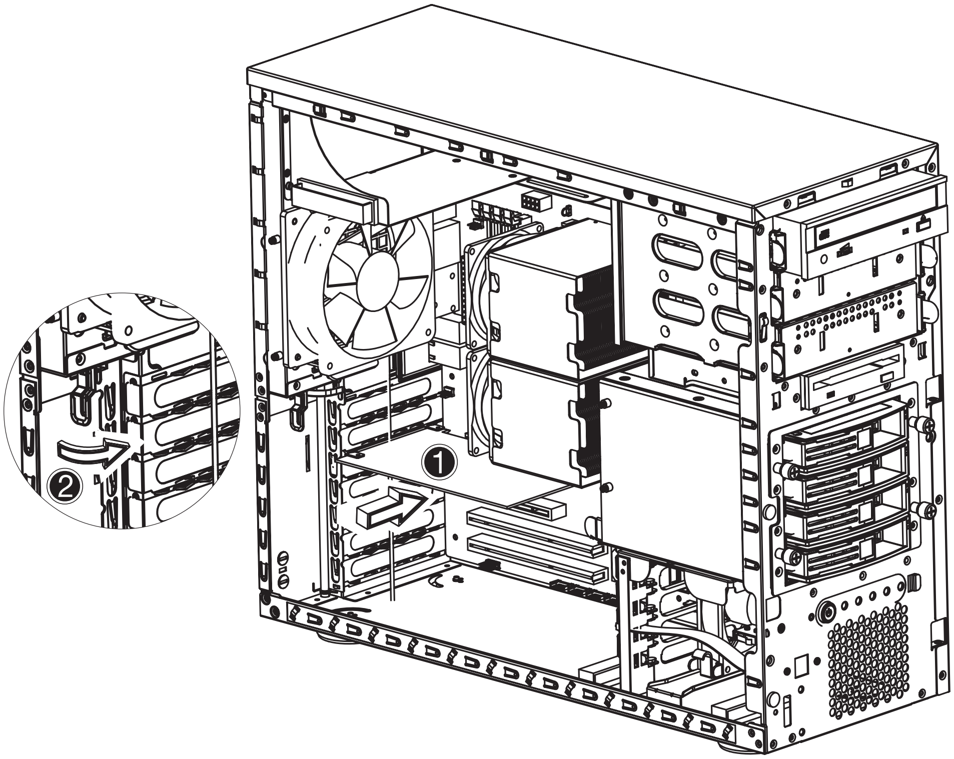


5 Remove the expansion card from its protective packaging.

6 Align the card in an empty slot on the mainboard.

7 Insert the bracket with the card into the selected slot **(1).** Make sure that the card is properly seated.

8 Secure the card by moving the expansion card locking lever back to the locked position **(2)**.



9 Observe the post-installation instructions described on page 38.

# Installing a redundant power supply module

The Altos G520 server power subsystem consists of two hot-swappable power supply module bays that accept standard 610-watt power supply modules. The system comes bundled with only a single power supply module leaving one power supply module bay empty. You have the option to purchase an extra power supply module to provide your system with redundant power source. This power configuration enables a fully-configured system to continue running even if one power supply module fails.

**Note:** The redundant power source feature is only applicable to the Altos G520 model.

**WARNING!** To reduce the risk of personal injury or damage to the equipment, the installation of power supply modules should be referred to individuals who are qualified to service server systems and are trained to deal with equipment capable of generating hazardous energy levels.

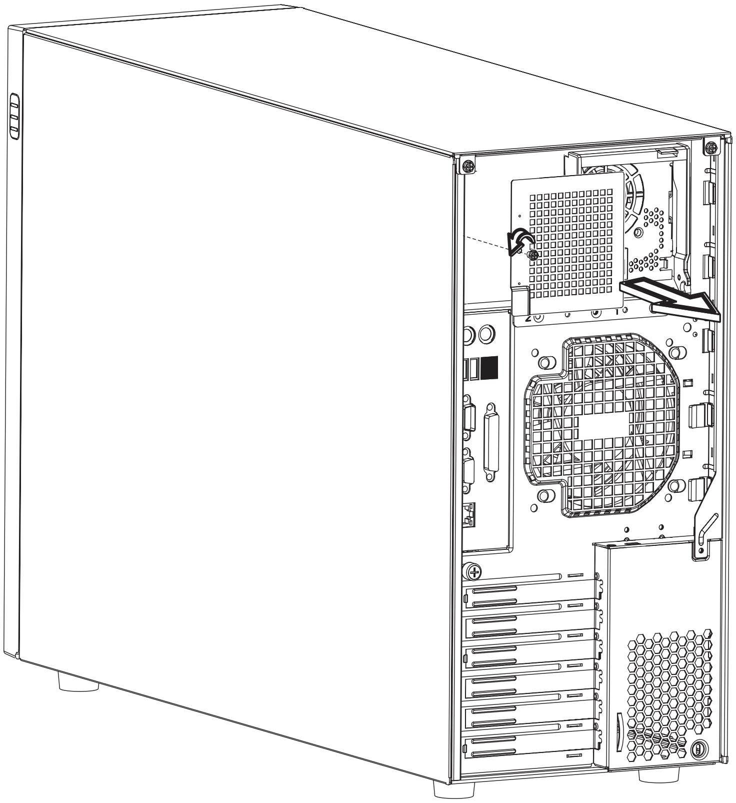
**WARNING!** To reduce the risk of personal injury from hot surfaces, observe the thermal labels on each power supply module. You can also consider wearing protective gloves.

**WARNING!** To reduce the risk of personal injury from electric shock hazards, do not open the power supply modules. There are no serviceable parts inside the module.

**Caution!** Electrostatic discharge can damage electronic components. Make sure that you are properly grounded before handling a power supply module.

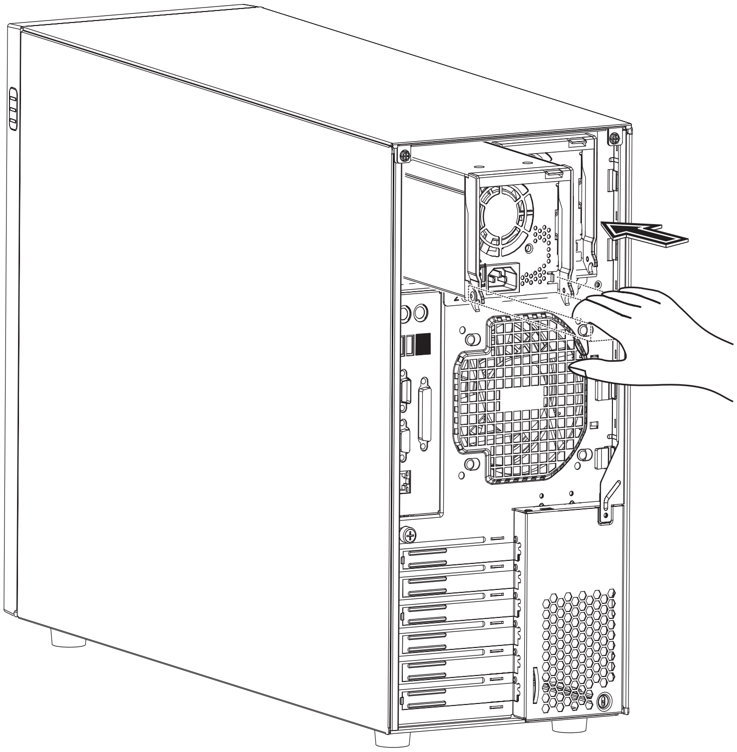
# To install a redundant power supply module

1 Remove the screw securing the cover of the empty optional power supply module bay, then remove the cover.



2 Slide the redundant power supply module into the empty bay until you feel resistance.

3 Press the module handle to secure the power supply module to the bay.



4 Verify that the power indicators on both the main power supply and on the newly installed redundant power supply are illuminated (green).

# 4 BIOS setup

This chapter gives information about the system BIOS and discusses how to configure the system by changing the settings of the BIOS parameters.

# BIOS setup

BIOS setup is a hardware configuration program built into your system's Basic Input/Output System (BIOS). Since most systems are already properly configured and optimized, there is no need to run this utility. You will need to run this utility under the following conditions:

- When changing the system configuration
- When a configuration error is detected by the system and you are prompted ("Run Setup" message) to make changes to the BIOS setup

**Note:** If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

BIOS setup loads the configuration values in a battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM which allows configuration data to be retained when power is turned off.

Before you run BIOS setup, make sure that you have saved all open files. The system reboots immediately after you close the setup.

# Entering BIOS setup

Power on the server to start the system POST (Power On Self Test) process. During bootup, press **<F2>** to enter the BIOS setup screen.

**Note:** Note: You must press **<F2>** while the system is booting. This hot key does not work at any other time.

There are several tabs on the setup screen corresponding to the six major BIOS menus:

- Main
- Advanced
- Boot
- Security
- Server
- Exit

The parameters on the screens shown in this User's guide display default system values. These values may not be the same as those in your system.

Note the following reminders when moving around the setup screen:

- Use the **Left** and **Right** arrow keys to move to the next page or to return to the previous screen.
- Use the **Up** and **Down** arrow keys to select an item.
- Use the **+** and **-** keys to select an option.

**Note:** You can configure a parameter that is enclosed in square brackets. Grayed-out items have fixed settings and are not user-configurable.

- Use the **Tab** key to select a field.
- Use the **Enter** key to display a submenu screen.

**Note:** When a parameter is preceded by a (>), it means that a submenu screen is available.

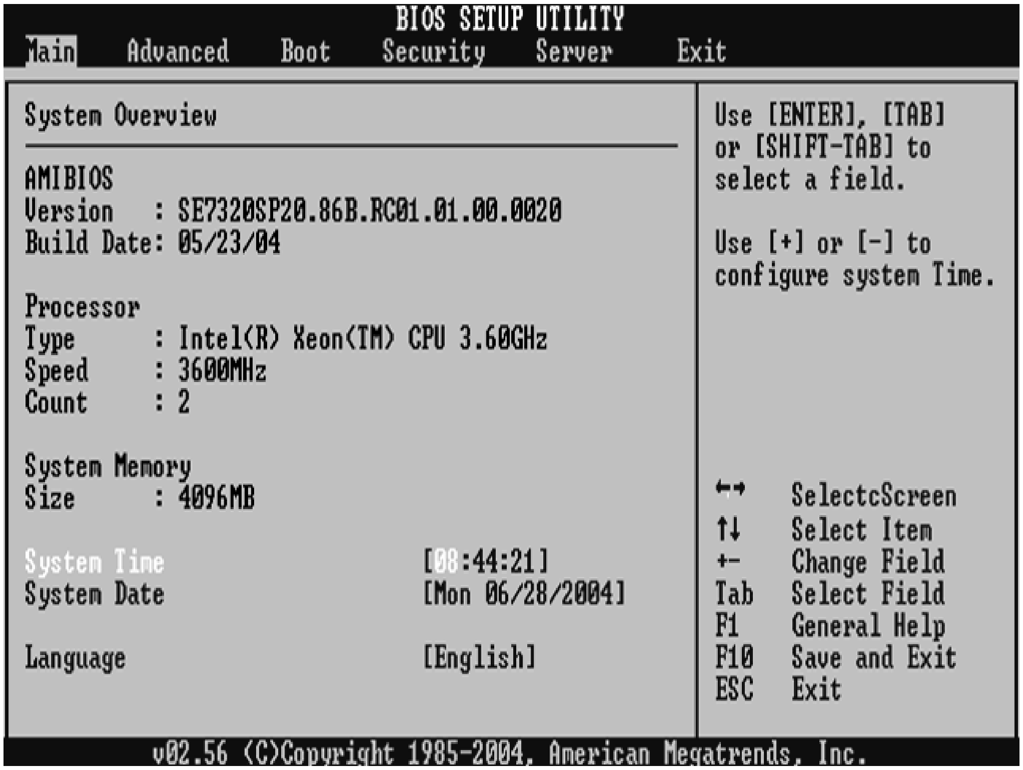
- Press **F1** for General Help on using the BIOS setup.
- Press **F10** to save changes and close the BIOS setup.
- Press **Esc** to close the BIOS setup.

In the descriptive table following each of the screen illustrations, settings in **boldface** are the default and suggested parameter settings.

# Main

The Main menu displays basic and important information about the system. These information is necessary for troubleshooting and may be required when asking for technical support.

The last two parameters on the screen lets you define the system's time and date settings. The real-time clock keeps the system date and time. After setting the date and time, you do not need to enter them every time you turn on the system. As long as the internal battery remains good and connected, the clock continues to keep the date and time accurately even when the power is off.



```
                          BIOS SETUP UTILITY
 Main    Advanced    Boot    Security    Server     Exit

 System Overview                                Use [ENTER], [TAB]
 ------------------------------------------     or [SHIFT-TAB] to
 AMIBIOS                                        select a field.
 Version   : SE7320SP20.86B.RC01.01.00.0020
 Build Date: 05/23/04                           Use [+] or [-] to
                                                configure system Time.
 Processor
 Type      : Intel(R) Xeon(TM) CPU 3.60GHz
 Speed     : 3600MHz
 Count     : 2

 System Memory
 Size      : 4096MB                             ←→    SelectcScreen
                                                ↑↓    Select Item
 System Time                [08:44:21]          +-    Change Field
 System Date                [Mon 06/28/2004]    Tab   Select Field
                                                F1    General Help
 Language                   [English]           F10   Save and Exit
                                                ESC   Exit

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```

| Parameter | Description |
|---|---|
| AMIBIOS Version | BIOS ID string (excluding build date) |
| Build Date | Date when the BIOS setup was created |

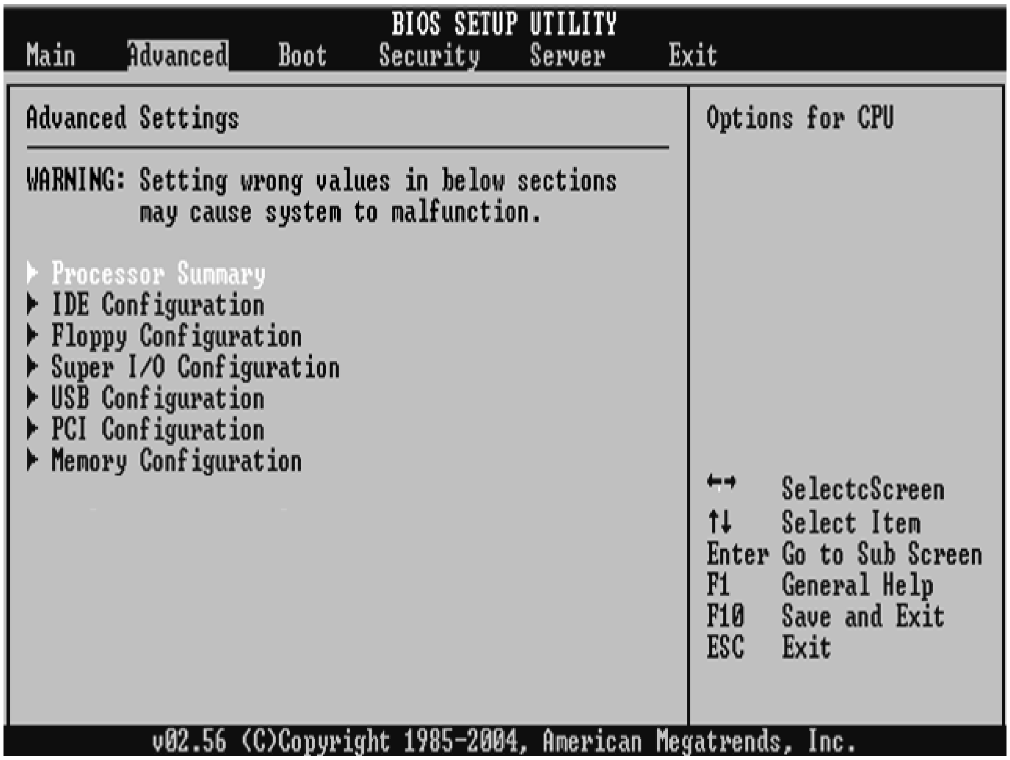
| Parameter | Description |
|---|---|
| Processor Type | Processor brand ID string |
| Speed | Calculated processor speed |
| Count | Number of processors detected |
| System Memory Size | Amount of physical memory detected |
| System Time | Configures the system time in 24hour format HH:MM:SS |
| System Date | Configures the system date.<br>Default value is Build Date |
| Language | Select the language used by BIOS. Choose from:<br>• **English** (default)<br>• French<br>• German<br>• Italian<br>• Spanish |

# Advanced

The Advanced menu contains parameter values that define how the system behaves on startup.

**Warning!** Be cautious in setting parameter values in the Advanced menu as any incorrect value may cause the system to malfunction.

Press **Enter** to enter the submenu screen of the parameters shown in the screen below.



```
                         BIOS SETUP UTILITY
 Main   Advanced   Boot   Security   Server   Exit
 Advanced Settings                               Options for CPU

 WARNING: Setting wrong values in below sections
          may cause system to malfunction.

 ▶ Processor Summary
 ▶ IDE Configuration
 ▶ Floppy Configuration
 ▶ Super I/O Configuration
 ▶ USB Configuration
 ▶ PCI Configuration
 ▶ Memory Configuration
                                                 ←→    SelectcScreen
                                                 ↑↓    Select Item
                                                 Enter Go to Sub Screen
                                                 F1    General Help
                                                 F10   Save and Exit
                                                 ESC   Exit

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```
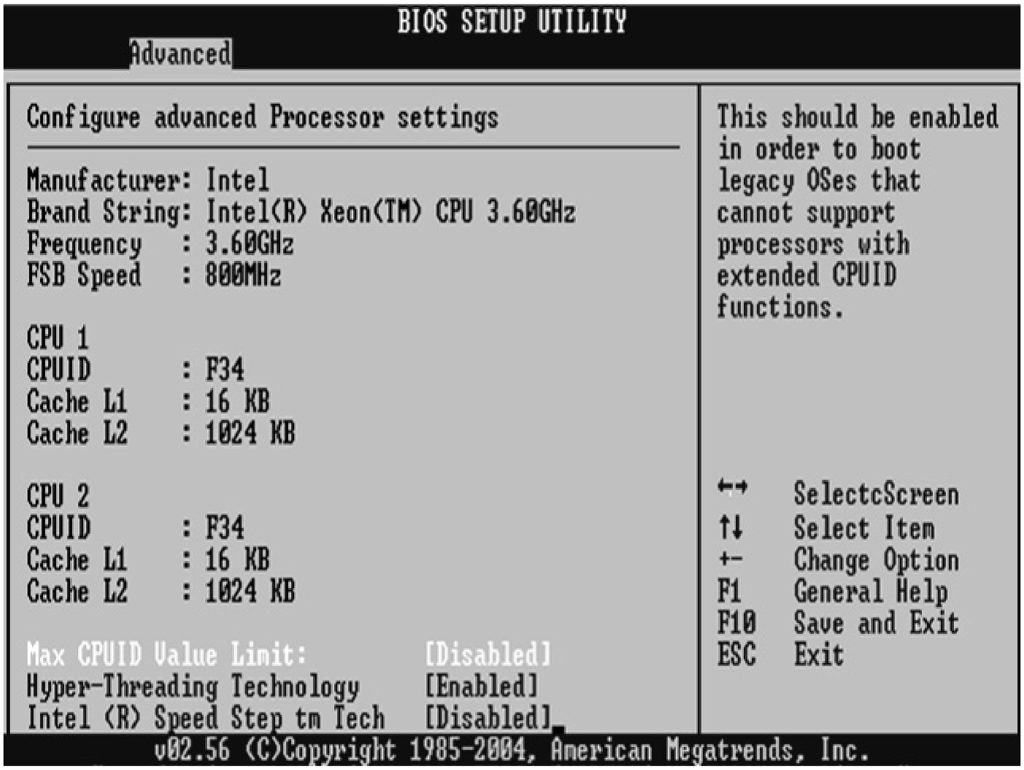

# Processor Summary and Configuration

The Processor Summary/Configuration submenu displays general information about the installed processor(s) and lets you define advanced settings.



```
                         BIOS SETUP UTILITY
      Advanced
 Configure advanced Processor settings          This should be enabled
                                                in order to boot
 Manufacturer: Intel                            legacy OSes that
 Brand String: Intel(R) Xeon(TM) CPU 3.60GHz    cannot support
 Frequency    : 3.60GHz                         processors with
 FSB Speed    : 800MHz                          extended CPUID
                                                functions.
 CPU 1
 CPUID        : F34
 Cache L1     : 16 KB
 Cache L2     : 1024 KB
                                                ←→   SelectcScreen
 CPU 2                                          ↑↓   Select Item
 CPUID        : F34                             +-   Change Option
 Cache L1     : 16 KB                           F1   General Help
 Cache L2     : 1024 KB                         F10  Save and Exit
                                                ESC  Exit
 Max CPUID Value Limit:          [Disabled]
 Hyper-Threading Technology      [Enabled]
 Intel (R) Speed Step tm Tech    [Disabled]
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```
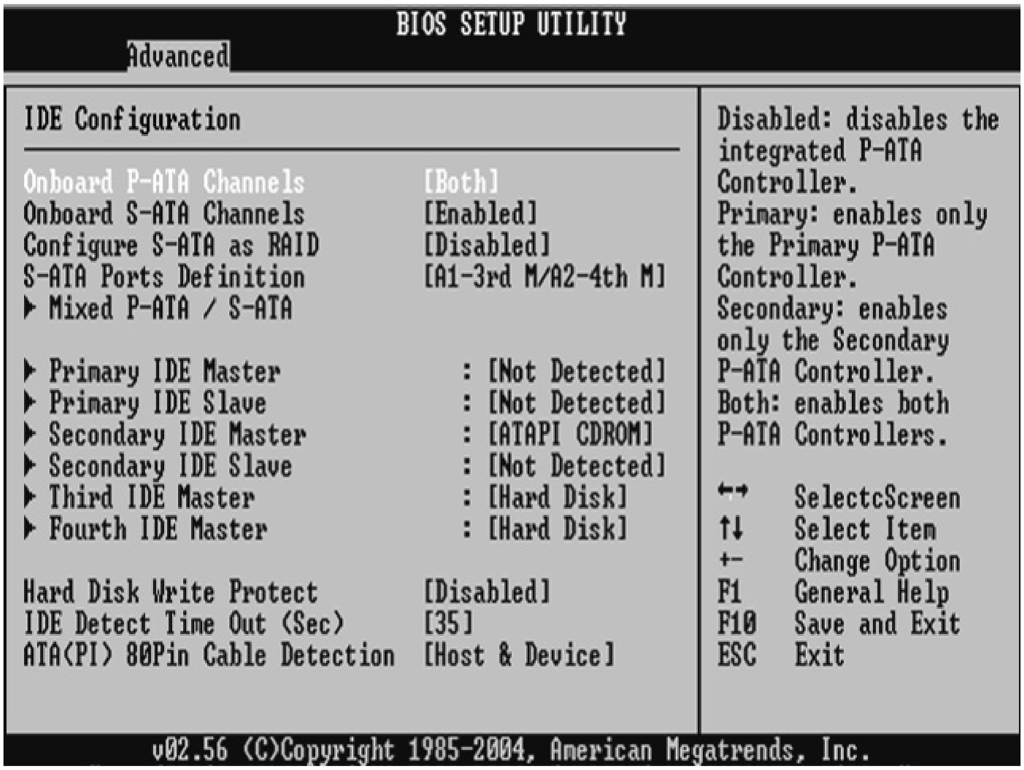

| Parameter | Description | Options |
|---|---|---|
| Max CPUID Value Limit | Enable to boot legacy operating systems | Disabled<br>Enabled |
| HyperThreading Technology | Controls HyperThreading state. Used to support older operating systems that do not support HyperThreading. | Disabled<br>Enabled |
| Intel® Speed Step™ Tech | Disable for maximum CPU speed. Enable to reduce CPU power consumption. | Auto<br>Disabled |

# IDE Configuration

The IDE Configuration submenu lets you define the parameter settings related to the hard disk/s.



```
                          BIOS SETUP UTILITY
        Advanced
IDE Configuration                              Disabled: disables the
                                               integrated P-ATA
Onboard P-ATA Channels      [Both]             Controller.
Onboard S-ATA Channels      [Enabled]          Primary: enables only
Configure S-ATA as RAID     [Disabled]         the Primary P-ATA
S-ATA Ports Definition      [A1-3rd M/A2-4th M] Controller.
▶ Mixed P-ATA / S-ATA                          Secondary: enables
                                               only the Secondary
▶ Primary IDE Master          : [Not Detected] P-ATA Controller.
▶ Primary IDE Slave           : [Not Detected] Both: enables both
▶ Secondary IDE Master        : [ATAPI CDROM]  P-ATA Controllers.
▶ Secondary IDE Slave         : [Not Detected]
▶ Third IDE Master            : [Hard Disk]    ←→    SelectcScreen
▶ Fourth IDE Master           : [Hard Disk]    ↑↓    Select Item
                                               +-    Change Option
Hard Disk Write Protect     [Disabled]         F1    General Help
IDE Detect Time Out (Sec)   [35]               F10   Save and Exit
ATA(PI) 80Pin Cable Detection [Host & Device]  ESC   Exit

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```
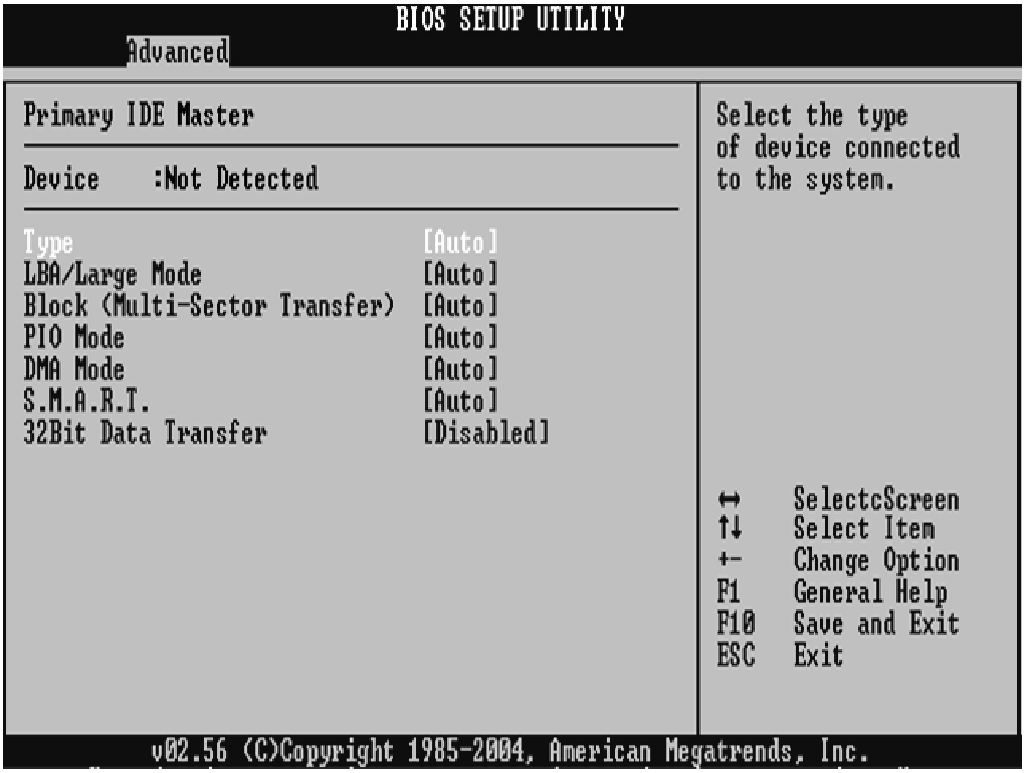

| Parameter | Description | Option |
|---|---|---|
| Onboard P-ATA Channels | Controls state of integrated P-ATA controller. | Disabled<br>Primary<br>Secondary<br>Both |
| Onboard S-ATA Channels | Controls state of integrated S-ATA controller. | Disabled<br>Enabled |
| Configure S-ATA as RAID | When enabled the S-ATA channels are reserved to be used as RAID. | Disabled<br>Enabled |

| Parameter | Description | Option |
|---|---|---|
| S-ATA Ports Definition | Defines priority between S-ATA channels. | A1-3$^{rd}$M / A2-4$^{th}$M<br>A1-4$^{th}$M / A2-3$^{rd}$M |
| Mixed P-ATA / S-ATA | Lets you remove a P-ATA and replace it by S-ATA in a given channel. only one channel can be S-ATA. | N/A |
| Primary IDE Master | Selects submenu with additional device deatils. | N/A |
| Primary IDE Slave | Selects submenu with additional device deatils. | N/A |
| Secondary IDE Master | Selects submenu with additional device deatils. | N/A |
| Secodary IDE Slave | Selects submenu with additional device deatils. | N/A |
| Third IDE Master | Selects submenu with additional device deatils. | N/A |
| Fourth IDE Master | Selects submenu with additional device deatils. | N/A |
| Hard Disk Write Protect | Used to prevent unauthorized writes to hard drives. | Disabled<br>Enabled |
| IDE Detect Time Out (sec) | Used with older IDE drives with longer spin up times. | 0<br>5<br>10<br>15<br>20<br>25<br>30<br>35 |
| ATA(PI) 80Pin Cable Detection | 80 pin cable is required for UDMA-66 and above. BIOS detects the cable by querying the host and/or device. | Host & Device<br>Host<br>Device |

## Primary/Secondary/Third/Fourth IDE Master/Slave

These items let you select the IDE hard disk parameters that the system supports.



```
                          BIOS SETUP UTILITY
        Advanced

 Primary IDE Master                                 Select the type
                                                    of device connected
 Device    :Not Detected                            to the system.

 Type                              [Auto]
 LBA/Large Mode                    [Auto]
 Block (Multi-Sector Transfer)     [Auto]
 PIO Mode                          [Auto]
 DMA Mode                          [Auto]
 S.M.A.R.T.                        [Auto]
 32Bit Data Transfer               [Disabled]

                                                    ↔     SelectcScreen
                                                    ↑↓    Select Item
                                                    +-    Change Option
                                                    F1    General Help
                                                    F10   Save and Exit
                                                    ESC   Exit

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```

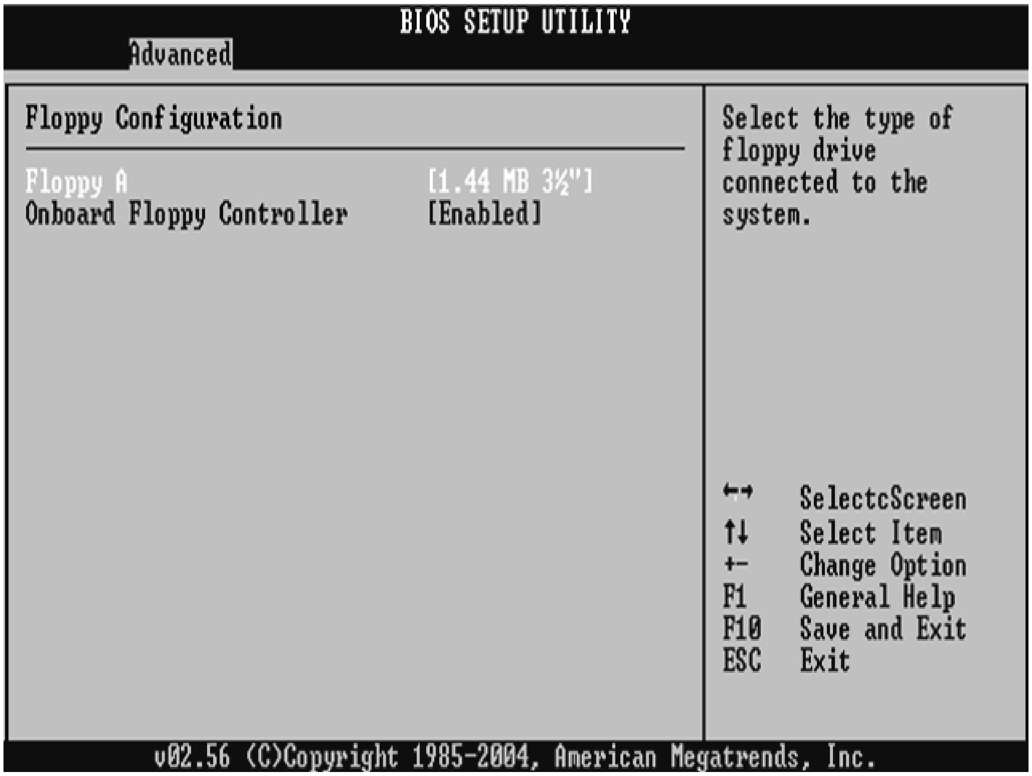
| Parameter | Description | Option |
|---|---|---|
| Device | Type of IDE device | |
| Vendor | Vendor of the selected IDE device | |
| Size | Size of the IDE disk | |
| Type | Driver type | Not Installed<br>Auto<br>CD-ROM<br>ARMD |

| Parameter | Description | Option |
|---|---|---|
| LBA/Large Mode | Selects the hard disk drive translation method. For drivers with more than 504 MB, the LBA mode is necessary. | Disabled<br>Auto |
| Block (Multi-Sector Transfer) Mode | Enhances disk performance depending on the hard disk in use.<br>If you set this parameter to Auto, BIOS setup automatically detects if the installed hard disk drive supports the Block Mode function. If supported, it allows data transfer in blocks (multiple sectors) at a rate of 256 bytes per cycle.<br>If you set this parameter to Disabled, data transfer from and to the device occurs one sector at a time. | Disabled<br>Auto |
| PIO Mode | When set to **Auto**, BIOS setup automatically detects if the installed hard disk supports the function. If supported, it allows for faster data recovery and read/write timing that reduces hard disk activity time. This results in better hard disk performance. | Auto<br>0<br>1<br>2<br>3<br>4 |
| DMA Mode | Selects DMA (Direct Memory Access) mode. Options include:<br>Auto: Auto detected<br>SWDMAn: SingleWordDMAn<br>MWDMAn: MultiWordDMAn<br>UDMAn: UltraDMAn | Auto<br>SWDMA0-0<br>SWDMA0-1<br>SWDMA0-2<br>MWDMA0-0<br>MWDMA0-1<br>MWDMA0-2<br>UWDMA0-0<br>UWDMA0-1<br>UWDMA0-2<br>UWDMA0-3<br>UWDMA0-4<br>UWDMA0-5 |

| Parameter | Description | Option |
|---|---|---|
| S.M.A.R.T | Enables or disables the S.M.A.R.T (Self-Monitoring, Analysis and Reporting Technology) function of the internal hard disk.<br>If 'Auto' is selected, BIOS setup will enable the S.M.A.R.T function if the driver supports it. | Auto<br>Disabled<br>Enabled |
| 32-bit Data Transfer | Enables or disables the 32-bit data transfer function | Disabled<br>Enabled |

# Floppy Configuration

The Floppy Configuration submenu displays the type of floppy drive installed in the server.


BIOS SETUP UTILITY
Advanced

```
Floppy Configuration

Floppy A                       [1.44 MB 3½"]
Onboard Floppy Controller      [Enabled]
```

Select the type of floppy drive connected to the system.

←→ SelectcScreen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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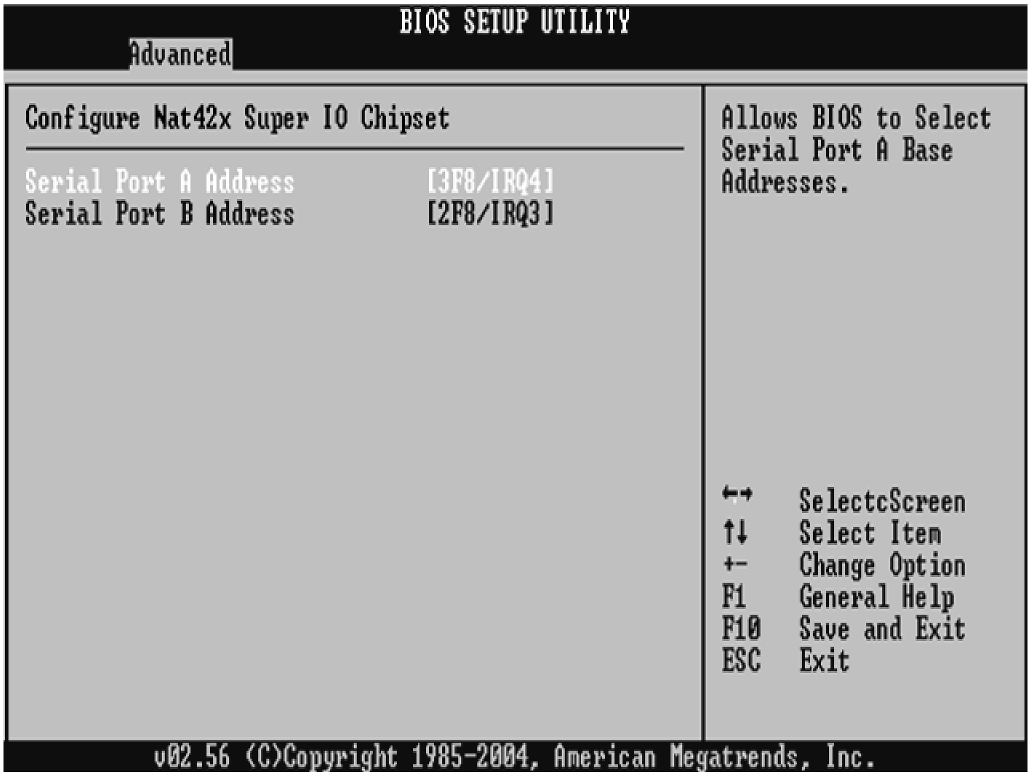
| Parameter | Description | Option |
|---|---|---|
| Floppy Drive A | Floppy disk drive type | None<br>720 KB, 3.5-inch<br>1.44 MB, 3.5-inch<br>2.88 MB, 3-5-inch |
| Onboard Flopppy Controller | Allows BIOS to enable or disable the floppy controller. | Disabled<br>Enabled |

# Super I/O Configuration

The PCI/PnP Configuration submenu lets you specify the settings for the PCI devices.



BIOS SETUP UTILITY

Advanced

Configure Nat42x Super IO Chipset

```
Serial Port A Address          [3F8/IRQ4]
Serial Port B Address          [2F8/IRQ3]
```

Allows BIOS to Select Serial Port A Base Addresses.

←→ SelectcScreen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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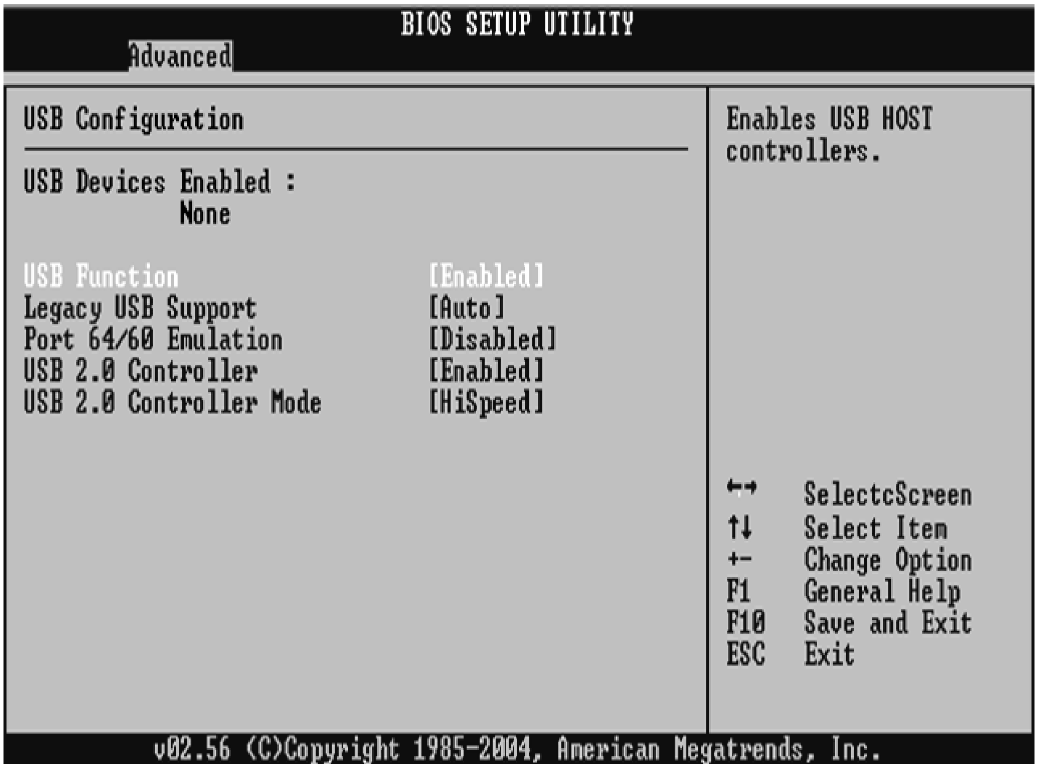
| Parameter | Description | Option |
|---|---|---|
| Serial Port A Address | Option that is used by other serial port is hidden to prevent conflicting settings. | Disabled<br>3F8/IRQ4<br>2F8/IRQ3<br>3E8/IRQ4<br>2E8/IRQ3 |
| Serial Port B Address | Option that is used by other serial port is hidden to prevent conflicting settings. | Disabled<br>3F8/IRQ4<br>2F8/IRQ3<br>3E8/IRQ4<br>2E8/IRQ3 |

# USB Configuration

The USB Configuration submenu lets you specify the settings for the legacy devices and USB 2.0.



```
                         BIOS SETUP UTILITY
       Advanced
USB Configuration                                     Enables USB HOST
                                                      controllers.
USB Devices Enabled :
            None

USB Function                      [Enabled]
Legacy USB Support                [Auto]
Port 64/60 Emulation              [Disabled]
USB 2.0 Controller                [Enabled]
USB 2.0 Controller Mode           [HiSpeed]

                                                      ←→    SelectcScreen
                                                      ↑↓    Select Item
                                                      +-    Change Option
                                                      F1    General Help
                                                      F10   Save and Exit
                                                      ESC   Exit

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```
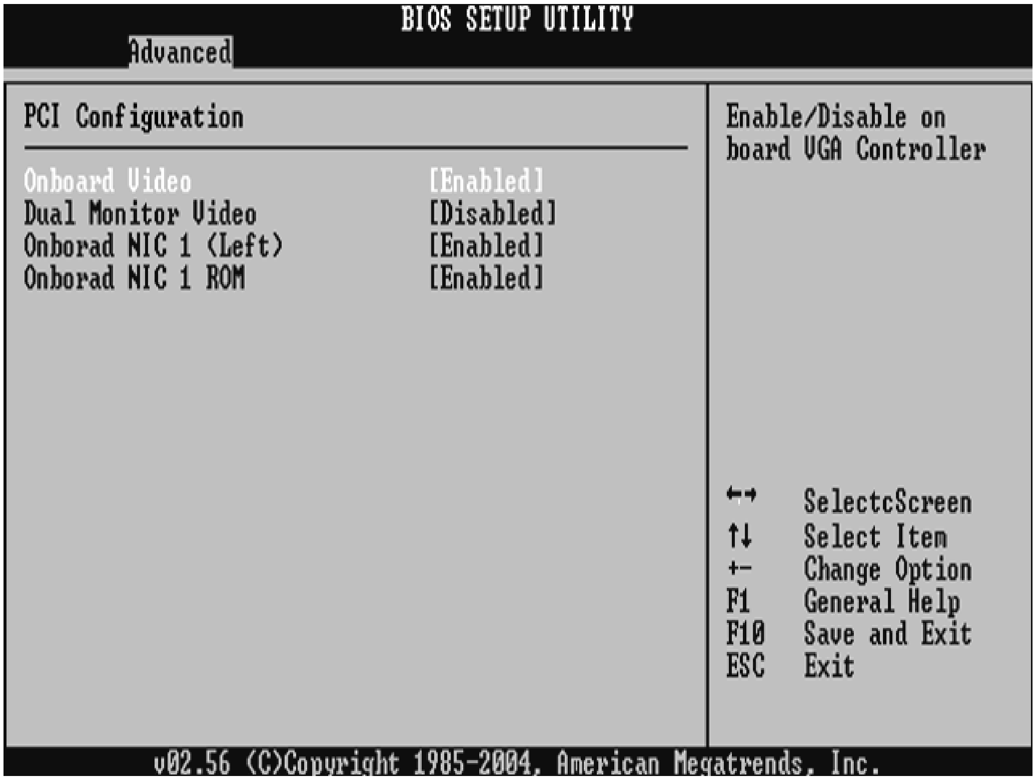

| Parameter | Description | Option |
|---|---|---|
| USB Function | When set to disabled other USB options are grayed out. | Disabled<br>Enabled |
| Legacy USB Support | Enables legacy USB support. | Disabled<br>Keyboard only<br>Auto<br>Keyboard and Mouse |

| Parameter | Description | Option |
|---|---|---|
| Port 60/64 Emulation | Should be enabled for full USB legacy support. | Disabled<br>Enabled |
| USB 2.0 Controller | Enables USB 2.0 | Disabled<br>Enabled |
| USB 2.0 Controller Mode | Set transfer rate at 480Mbps (Hi) or 12Mbps (full) | FullSpeed<br>HiSpeed |

# PCI Configuration

The PCI/PnP Configuration submenu lets you specify the settings for the PCI devices.


BIOS SETUP UTILITY
Advanced

PCI Configuration

```
Onboard Video               [Enabled]
Dual Monitor Video          [Disabled]
Onborad NIC 1 (Left)        [Enabled]
Onborad NIC 1 ROM           [Enabled]
```

Enable/Disable on board VGA Controller

←→ SelectcScreen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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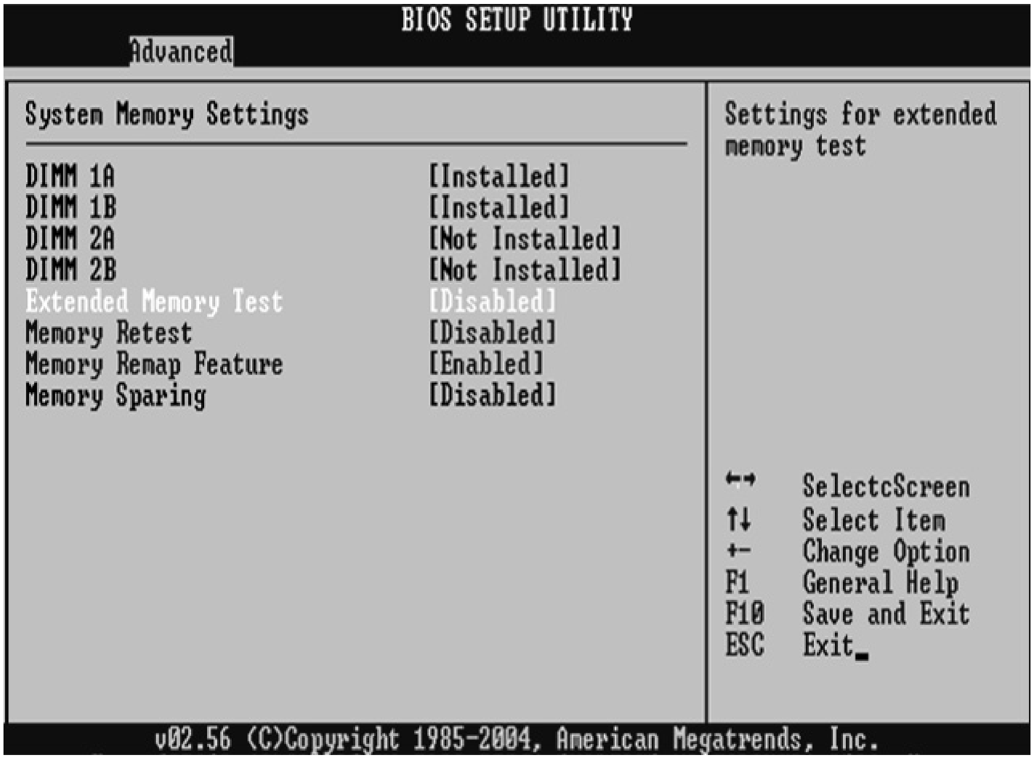
| Parameter | Description | Option |
|---|---|---|
| Onboard Video | Enables or disables VGA controller. | Disabled<br>Enabled |
| Dual Monitor Video | Grayed out if onboard video is set to disabled. | Disabled<br>Enabled |
| Onboard NIC 1 (Left) | Enables or disables onboard Network Interface Controller. | Disabled<br>Enabled |
| Onboard NIC 1 ROM | Grayed out if device is disabled. | Disabled<br>Enabled |

# Memory Configuration

The Memory Configuration submenu provides information about the DIMMs detected by BIOS. The DIMM number is printed on the mainboard, see page 14 for help locating them.



BIOS SETUP UTILITY
Advanced
←→ SelectcScreen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit

```
System Memory Settings

DIMM 1A                          [Installed]
DIMM 1B                          [Installed]
DIMM 2A                          [Not Installed]
DIMM 2B                          [Not Installed]
Extended Memory Test             [Disabled]
Memory Retest                    [Disabled]
Memory Remap Feature             [Enabled]
Memory Sparing                   [Disabled]
```

Settings for extended memory test

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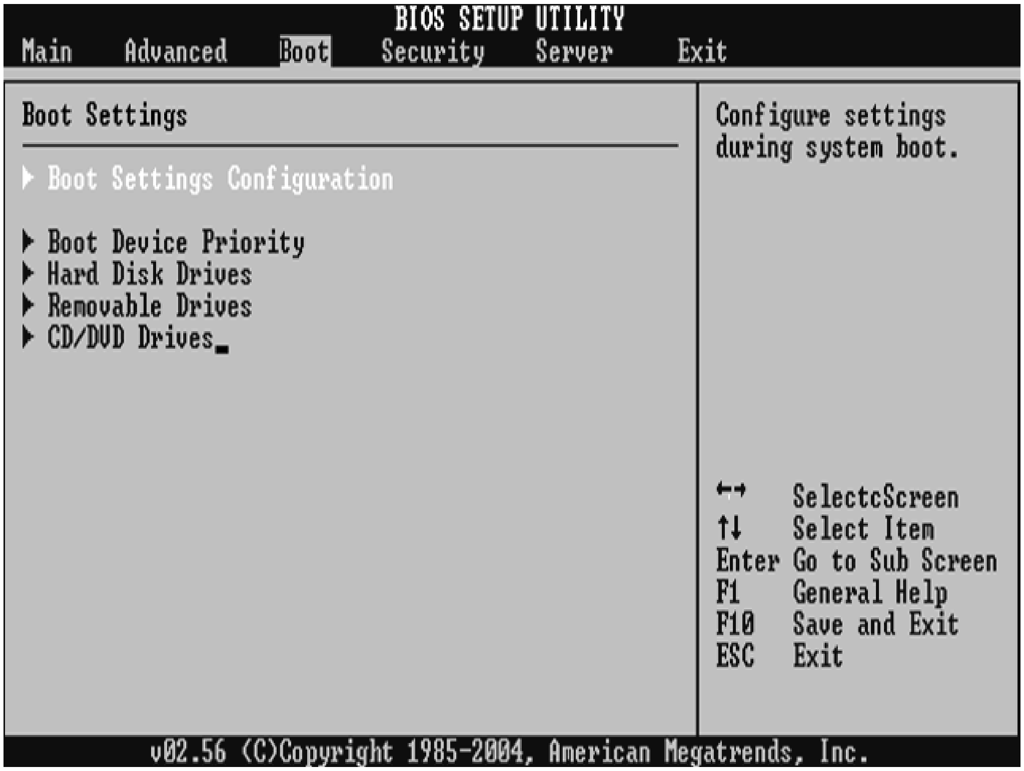
| Parameter | Description | Option |
|---|---|---|
| DIMM 1A<br>DIMM 1B<br>DIMM 2A<br>DIMM 2B | Non-User configurable informational display. | Installed<br>Not Installed<br>Disabled<br>Spare |
| Extended Memory Test | Settings for testing extended memory. | 1 MB<br>1 KB<br>Every Location<br>Disabled |

| Parameter | Description | Option |
|---|---|---|
| Memory Retest | When enabled, BIOS will activate and retest all DIMMs on next boot. Automatically reset to disabled. | Disabled<br>Enabled |
| Memory Remap Feature | Enable or disable remapping of overlapped PCI memory above physical memory. | Disabled<br>Enabled |
| Memory Sparing | Grayed out if current memory configuration does not support sparing. | Disabled<br>Spare |

# Boot

The Boot menu allows you to specify the preferred settings during system bootup.

Press **Enter** to enter the submenu screen of the parameters shown in the screen below.



BIOS SETUP UTILITY
Main Advanced Boot Security Server Exit

Boot Settings

- ▶ Boot Settings Configuration
- ▶ Boot Device Priority
- ▶ Hard Disk Drives
- ▶ Removable Drives
- ▶ CD/DVD Drives

Configure settings during system boot.

| | |
|---|---|
| ←→ | SelectcScreen |
| ↑↓ | Select Item |
| Enter | Go to Sub Screen |
| F1 | General Help |
| F10 | Save and Exit |
| ESC | Exit |

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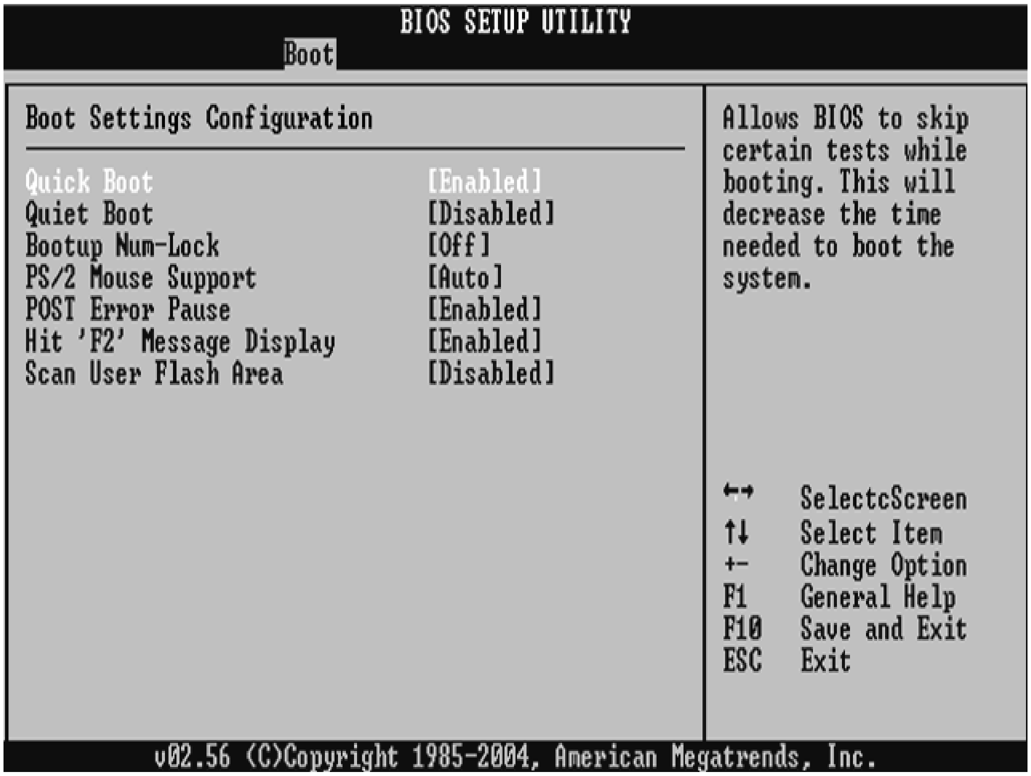
# Boot Settings Configuration

The Boot Settings Configuration submenu lets you specify the preferred settings for system bootup.



```
                          BIOS SETUP UTILITY
                     Boot
Boot Settings Configuration                    Allows BIOS to skip
                                               certain tests while
Quick Boot                    [Enabled]        booting. This will
Quiet Boot                    [Disabled]       decrease the time
Bootup Num-Lock               [Off]            needed to boot the
PS/2 Mouse Support            [Auto]           system.
POST Error Pause              [Enabled]
Hit 'F2' Message Display      [Enabled]
Scan User Flash Area          [Disabled]



                                               ←→   SelectcScreen
                                               ↑↓   Select Item
                                               +-   Change Option
                                               F1   General Help
                                               F10  Save and Exit
                                               ESC  Exit

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```

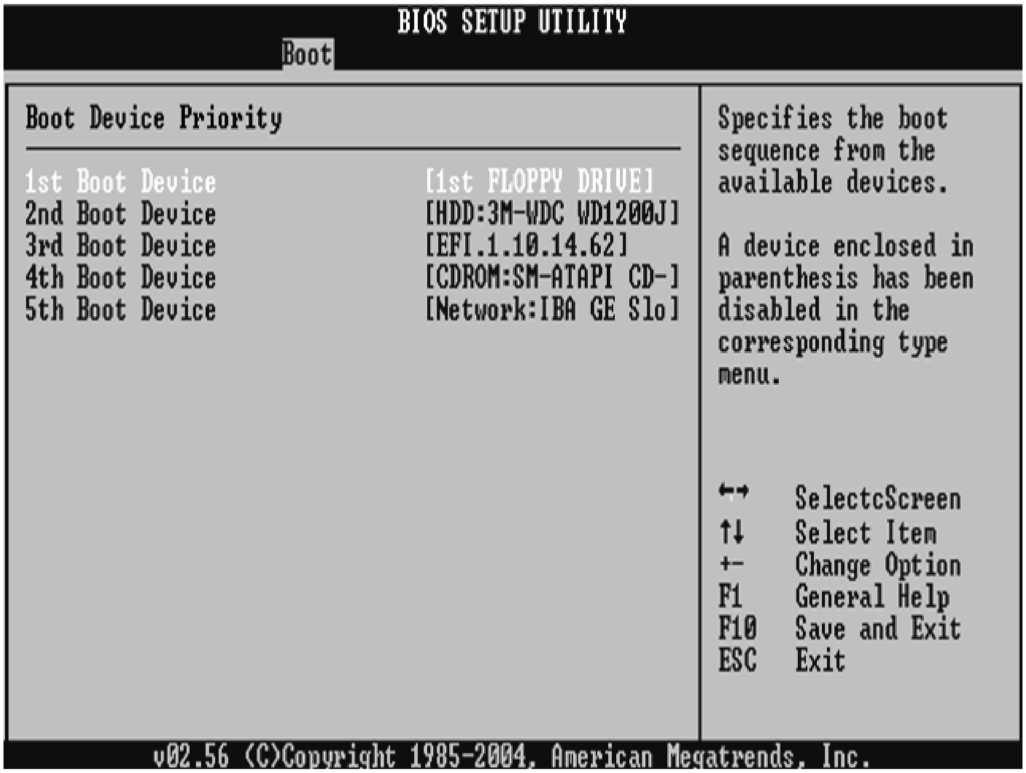
| Parameter | Description | Option |
|---|---|---|
| Quick Boot | Allows the system to boot faster by skipping some POST routines. | Disabled<br>Enabled |
| Quiet Boot | Enables or disables the Quiet Boot function. When set to Enabled, BIOS setup is in graphical mode and displays only an identification logo during POST and while booting. After booting, the screen displays the operating system prompt (such as DOS) or logo (such as Windows). If any error occurs while booting, the system automatically switches to text mode. | Disabled<br>Enabled |

| Parameter | Description | Option |
|---|---|---|
| Bootup Num-Lock | Sets the power on state for Numlock. | Off<br>On |
| PS/2 Mouse Support | Enable this parameter if you intend to use a mouse or trackball with a PS/2 interface. | Disabled<br>Enabled<br>Auto |
| POST Error pause | When this item is enabled you will be prompted when an error is detected during boot up. If disabled, the system will boot with no intervention, if possible. | Disabled<br>Enabled |
| Hit 'F2' Message Display | Displays "Press 'F2' to run Setup" during POST. | Disabled<br>Enabled |
| Scan User Flash Area | Allows BIOS to scan Flash ROM for user binaries. | Disabled<br>Enabled |

## Boot Device Priority

The Boot Device Priority submenu lets you specify the boot search sequence during the POST process.

BIOS setup will display an error message if the drive(s) specified is not bootable.



```
                        BIOS SETUP UTILITY
                   Boot
Boot Device Priority                          Specifies the boot
                                              sequence from the
1st Boot Device          [1st FLOPPY DRIVE]   available devices.
2nd Boot Device          [HDD:3M-WDC WD1200J]
3rd Boot Device          [EFI.1.10.14.62]     A device enclosed in
4th Boot Device          [CDROM:SM-ATAPI CD-] parenthesis has been
5th Boot Device          [Network:IBA GE Slo] disabled in the
                                              corresponding type
                                              menu.

                                              ←→    SelectcScreen
                                              ↑↓    Select Item
                                              +-    Change Option
                                              F1    General Help
                                              F10   Save and Exit
                                              ESC   Exit
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```
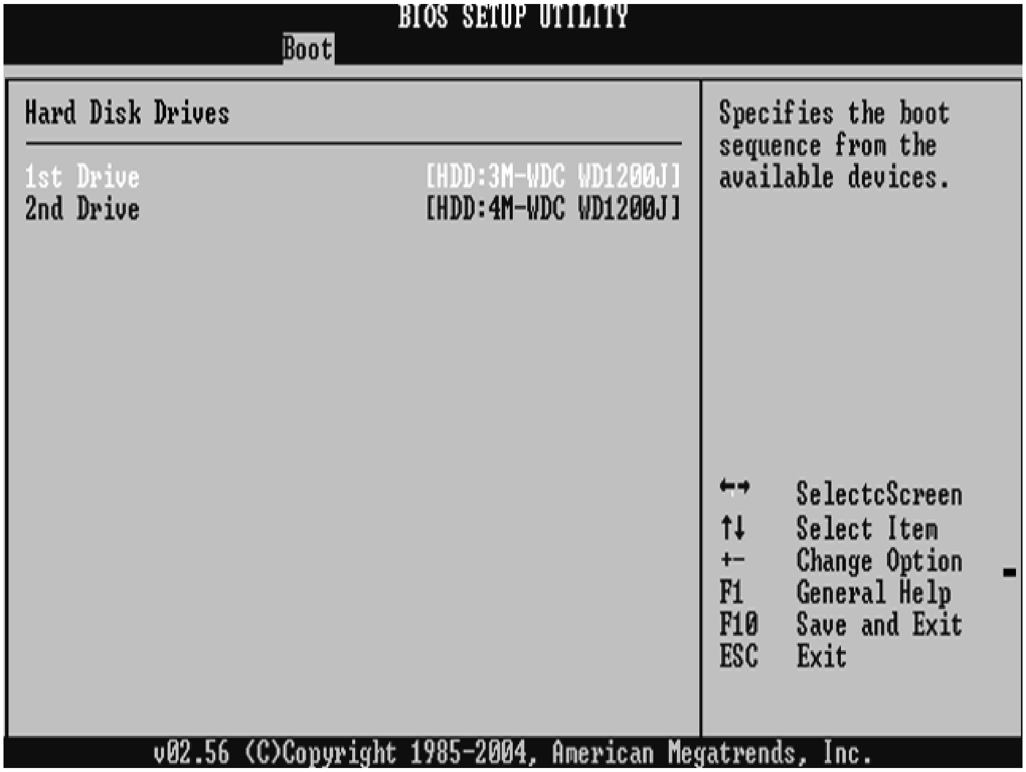

| Parameter | Description |
|---|---|
| 1st Boot Device | Sets the device from which the system will first attempt to boot up. |
| 2nd thru 5th Boot Device | Sets the device from which the system will attempt to boot up when previoius attempts fail. |

# Hard Disk Drives

The Hard Disk Drives submenu lets you specify the devices that will be considered as the primary and secondary hard drives.



```
                         BIOS SETUP UTILITY
                    Boot
Hard Disk Drives                                Specifies the boot
                                                sequence from the
1st Drive                  [HDD:3M-WDC WD1200J] available devices.
2nd Drive                  [HDD:4M-WDC WD1200J]



                                                ←→   SelectcScreen
                                                ↑↓   Select Item
                                                +-   Change Option
                                                F1   General Help
                                                F10  Save and Exit
                                                ESC  Exit
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```
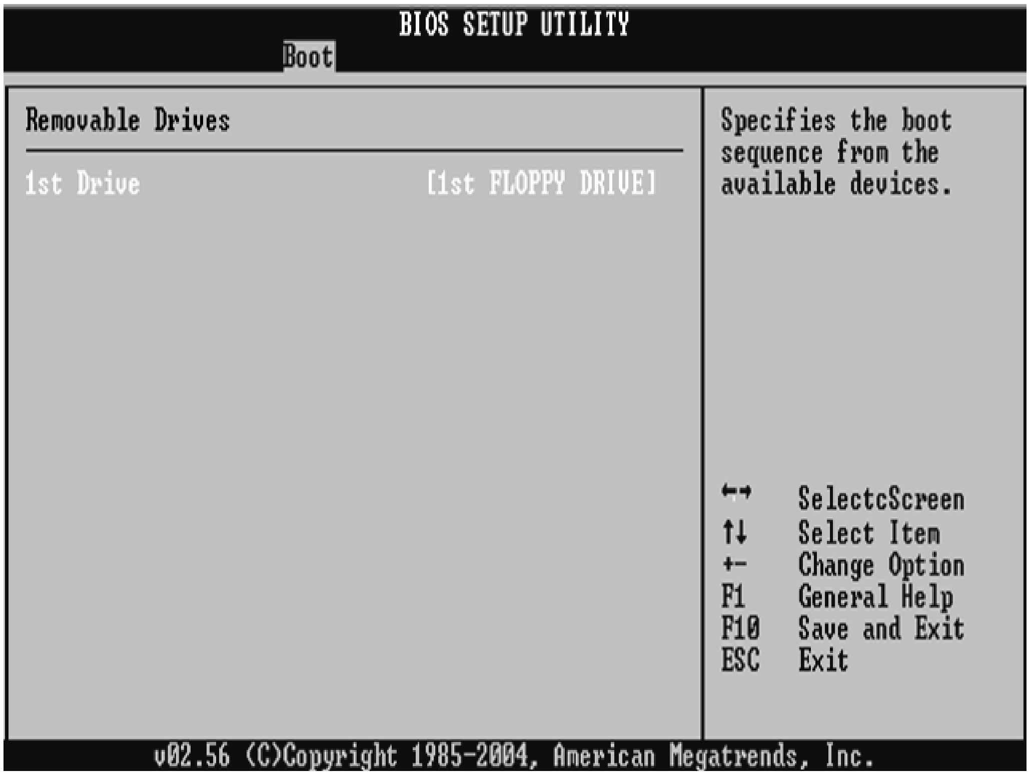

| Parameter | Description |
|---|---|
| 1st Drive | Sets the device to be considered the primary hard drive. |
| 2nd Drive | Sets the device to be considered the secondary hard drive. |

# Removable Devices

The Removable Devices submenu displays the type of removable devices available in the system.



```
                         BIOS SETUP UTILITY
                     Boot
Removable Drives                              Specifies the boot
                                              sequence from the
1st Drive                 [1st FLOPPY DRIVE]  available devices.

                                              ←→    SelectcScreen
                                              ↑↓    Select Item
                                              +-    Change Option
                                              F1    General Help
                                              F10   Save and Exit
                                              ESC   Exit
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```
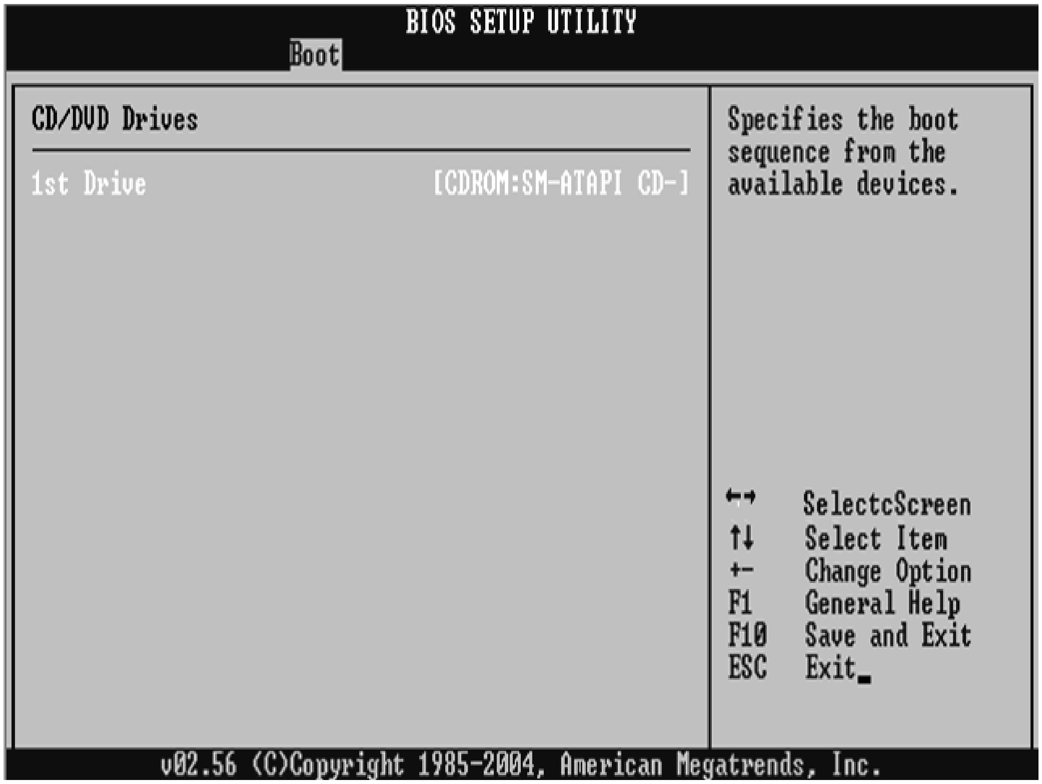

# ATAPI CD/DVD Devices

The ATAPI (Advanced Technology Attachment Packet Interface) CD-ROM submenu displays the type of ATAPI CD-ROM available in the system.



```
                         BIOS SETUP UTILITY
                    Boot
CD/DVD Drives                                 Specifies the boot
                                              sequence from the
1st Drive                [CDROM:SM-ATAPI CD-] available devices.




                                              ←→   SelectcScreen
                                              ↑↓   Select Item
                                              +-   Change Option
                                              F1   General Help
                                              F10  Save and Exit
                                              ESC  Exit
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```
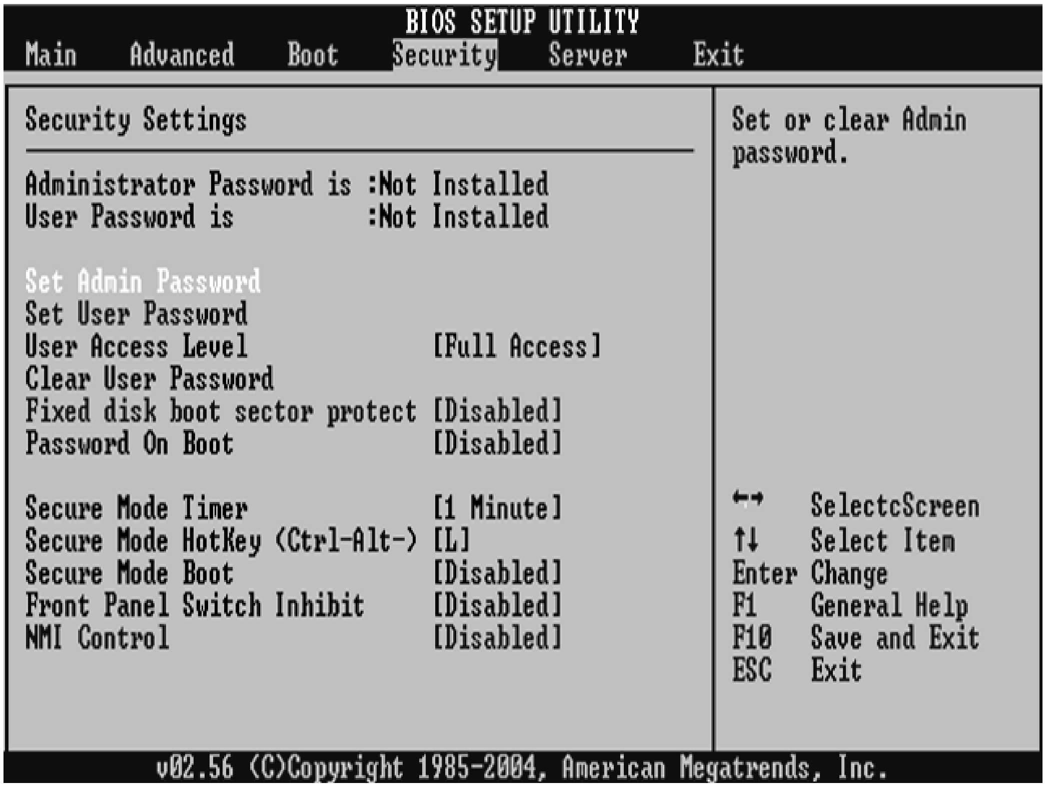

# Security

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.



```
Security Settings                                   Set or clear Admin
                                                    password.
Administrator Password is :Not Installed
User Password is          :Not Installed

Set Admin Password
Set User Password
User Access Level              [Full Access]
Clear User Password
Fixed disk boot sector protect [Disabled]
Password On Boot               [Disabled]

Secure Mode Timer              [1 Minute]           ←→    SelectcScreen
Secure Mode HotKey (Ctrl-Alt-) [L]                  ↑↓    Select Item
Secure Mode Boot               [Disabled]           Enter Change
Front Panel Switch Inhibit     [Disabled]           F1    General Help
NMI Control                    [Disabled]           F10   Save and Exit
                                                    ESC   Exit

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```

| Parameter | Description | Option |
|---|---|---|
| Administrator Password | Prevents unauthorized access to the BIOS setup | Not Installed<br>Installed |
| User Password | Secures your system against unauthorized use. Once you set this password, you have to type it whenever you boot the system. User password is available only when a Supervisor password is set. | Not Installed<br>Installed |
| Set Admin Password | Press **Enter** to change the Admin password. | N/A |

| Parameter | Description | Option |
|---|---|---|
| Set User Password | Press **Enter** to change the User password. | N/A |
| User Access Leves | Grayed out unless Admin password is set. | No Access<br>View Only<br>Limited<br>Full Access |
| Clear User Password | Grayed out unless Admin password is set. Press **Enter** to clear the user password. | N/A |
| Fixed disk boot sector protect | Enable or disable boot sector virus protection. | Disabled<br>Enabled |
| Password on Boot | Grayed out if User password is not installed. | Disabled<br>Enabled |
| Secure Mode Timer | Grayed out if User password is not installed. | 1 minute<br>2 minutes<br>5 minutes<br>10 minutes<br>20 minutes<br>60 minutes<br>120 minutes |
| Secure Mode HotKey (CTRL-ALT-) | Grayed out if User password is not installed. | L<br>Z |
| Secure Mode Boot | Grayed out if User password is not installed. | Disabled<br>Enabled |
| Front Panel Switch Inhibit | Grayed out if a password is not installed or if AC policy is set to Stays Off. | Disabled<br>Enabled |
| NMI Control | Enable or disable NMI control. | Disabled<br>Enabled |

# To set an Administrator/User password

1 Use the up/down keys to highlight a password parameter (Administrator Password or User Password) then press **Enter**.

A password box will appear.

2 Type a password then press **Enter**.

The password may consist of up to six alphanumeric characters (A-Z, a-z, 0-9).

3 Retype the password to verify the first entry then press **Enter** again.

After setting the password, the system automatically sets the chosen password parameter to Installed.

# To remove the User password

1 Use the up/down keys to highlight the Clear User Password parameter then press **Enter.**

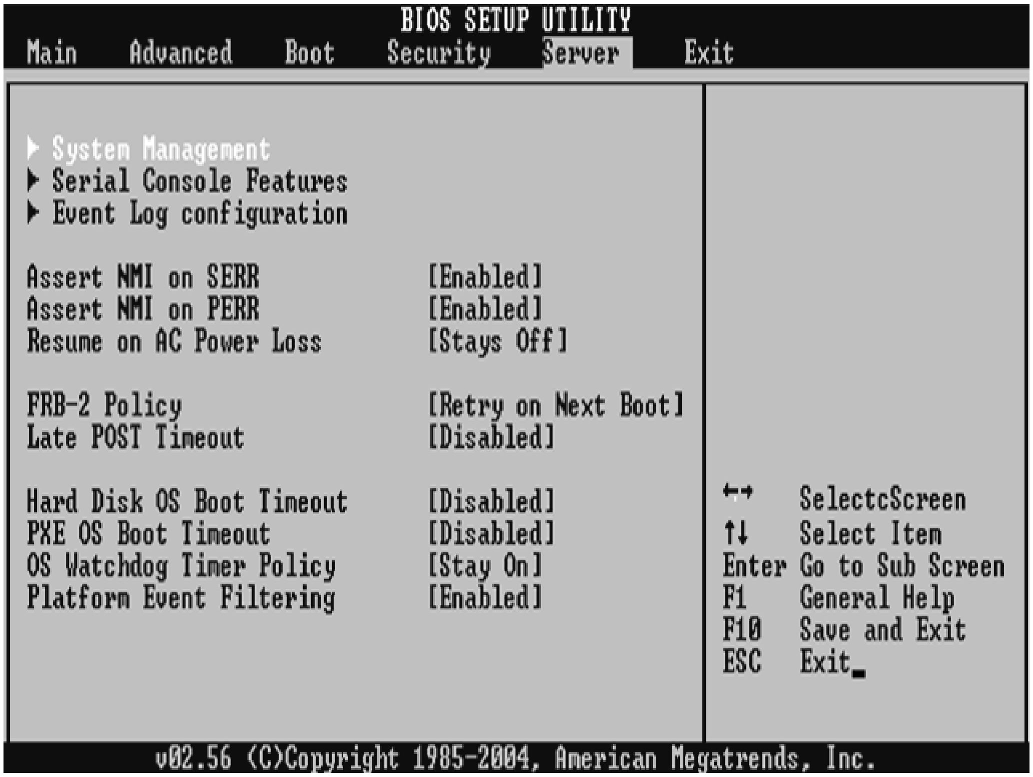
2 Enter the current Admin password then press **Enter**.

3 Press **Enter** twice without entering anything in the new and confirm password fields.

After doing this, the system automatically sets the User password parameter to Not Installed.

# Server

The Server menu allows you to configure the system parameters .



```
                         BIOS SETUP UTILITY
 Main    Advanced    Boot    Security    Server     Exit

 ▶ System Management
 ▶ Serial Console Features
 ▶ Event Log configuration

 Assert NMI on SERR             [Enabled]
 Assert NMI on PERR             [Enabled]
 Resume on AC Power Loss        [Stays Off]

 FRB-2 Policy                   [Retry on Next Boot]
 Late POST Timeout              [Disabled]

 Hard Disk OS Boot Timeout      [Disabled]      ←→    SelectcScreen
 PXE OS Boot Timeout            [Disabled]      ↑↓    Select Item
 OS Watchdog Timer Policy       [Stay On]       Enter Go to Sub Screen
 Platform Event Filtering       [Enabled]       F1    General Help
                                                F10   Save and Exit
                                                ESC   Exit

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```
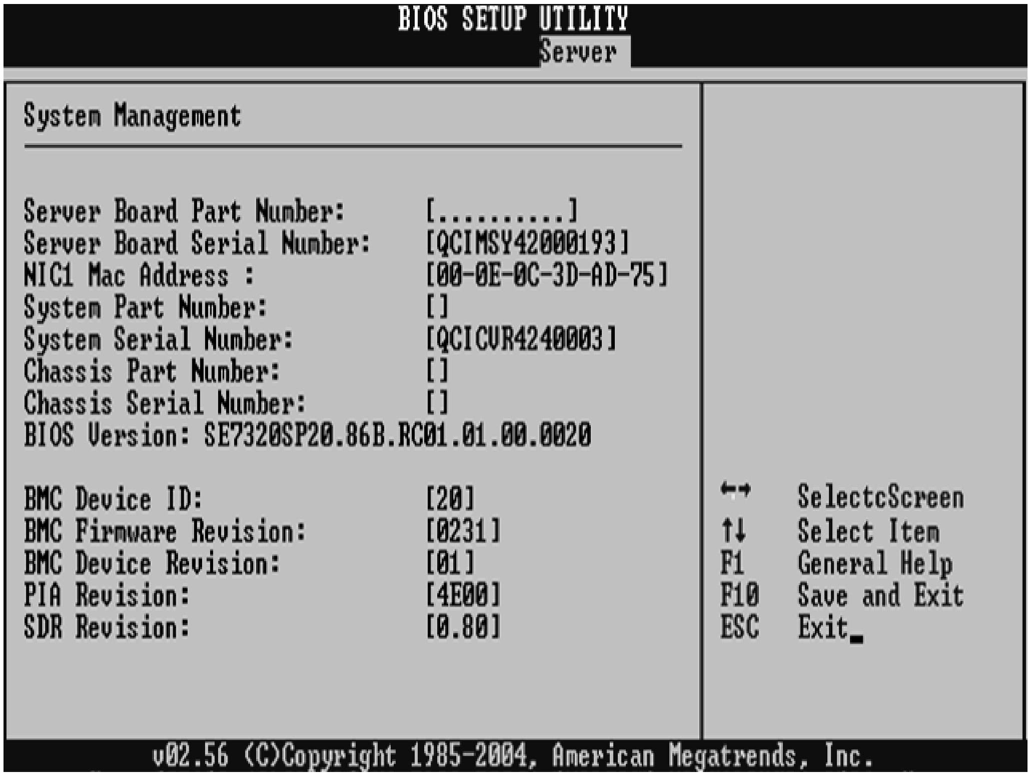

| Parameter | Description | Option |
|---|---|---|
| System Management | Press **Enter** to enter the submenu screen. | N/A |
| Serial Console Features | Press **Enter** to enter the submenu screen. | N/A |
| Event Log configuration | Press **Enter** to enter the submenu screen. | N/A |
| Assert NMI on SERR | If enabled, NMI generated on SERR and logged. | Disabled<br>Enabled |
| Assert NMI on PERR | Grayed out in NMI on SERR is disabled. | Disabled<br>Enabled |

| Parameter | Description | Option |
|---|---|---|
| Resume on AC Power Loss | When set to Stays Off, Front Panel Switch Inhibit (in BIOS Security menu) is disabled. | Stays Off<br>Power On |
| FRB-2 Policy | Controls action if boot processor is disabled or not. | Retry on Next Boot<br>Disable FRB2 Timer |
| Late POST Timeout | Controls time limit for add-in card detection. | Disabled<br>5 minutes<br>10 minutes<br>15 minutes<br>20 minutes |
| Hard Disk OS Boot Timeout | Controls the time limit for booting an OS from a HDD. | Disabled<br>5 minutes<br>10 minutes<br>15 minutes<br>20 minutes |
| PXE OS Boot Timeout | Controls the time limit for booting an OS using PXE boot. | Disabled<br>5 minutes<br>10 minutes<br>15 minutes<br>20 minutes |
| OS Watchdog Timer Policy | Controls the policy upon timeout. | Stay On<br>Reset<br>Power Off |
| Platform Event Filtering | Enable or disable trigger for system sensor events. | Disabled<br>Enabled |

# System Management

The System Management submenu displays specific system information. The following is for reference purposes only, your system configuration may vary.



```
                         BIOS SETUP UTILITY
                                   Server
System Management

Server Board Part Number:      [..........]
Server Board Serial Number:    [QCIMSY42000193]
NIC1 Mac Address :             [00-0E-0C-3D-AD-75]
System Part Number:            []
System Serial Number:          [QCICVR4240003]
Chassis Part Number:           []
Chassis Serial Number:         []
BIOS Version: SE7320SP20.86B.RC01.01.00.0020

BMC Device ID:                 [20]                  ←→   SelectcScreen
BMC Firmware Revision:         [0231]                ↑↓   Select Item
BMC Device Revision:           [01]                  F1   General Help
PIA Revision:                  [4E00]                F10  Save and Exit
SDR Revision:                  [0.80]                ESC  Exit_

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```
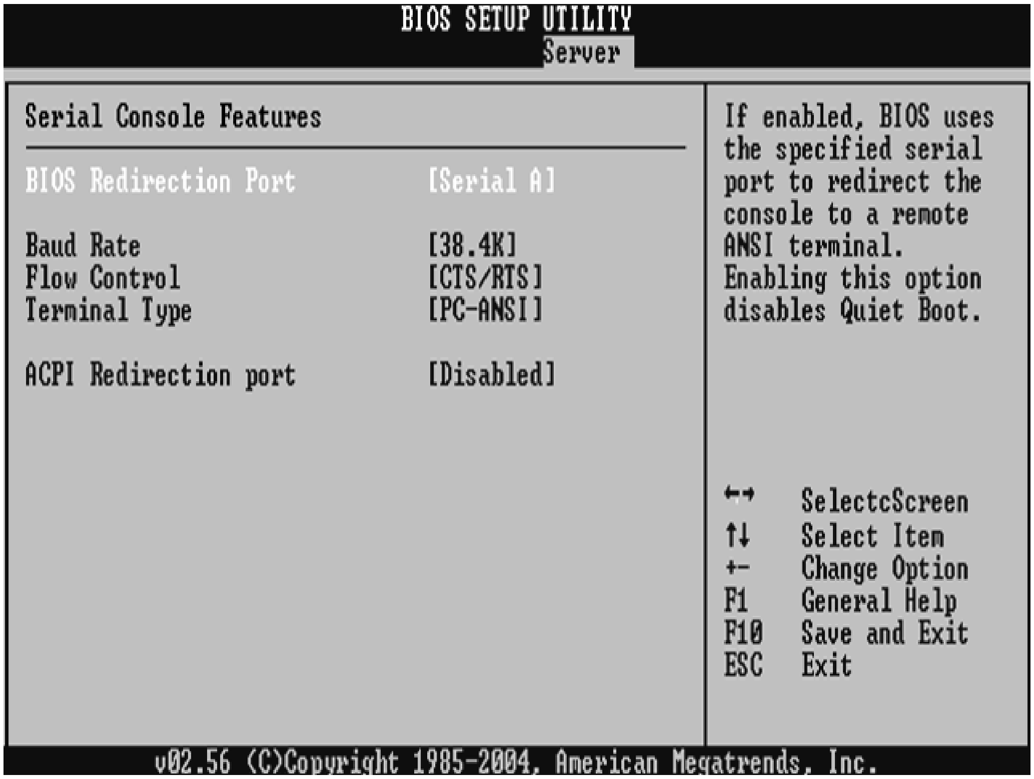

# Serial Console Features

The Serial Console Features submenu allows you to configure serial port settings.



```
                         BIOS SETUP UTILITY
                               Server

 Serial Console Features                        If enabled, BIOS uses
                                                the specified serial
 BIOS Redirection Port        [Serial A]        port to redirect the
                                                console to a remote
 Baud Rate                    [38.4K]           ANSI terminal.
 Flow Control                 [CTS/RTS]         Enabling this option
 Terminal Type                [PC-ANSI]         disables Quiet Boot.

 ACPI Redirection port        [Disabled]



                                                ←→    SelectcScreen
                                                ↑↓    Select Item
                                                +-    Change Option
                                                F1    General Help
                                                F10   Save and Exit
                                                ESC   Exit

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```
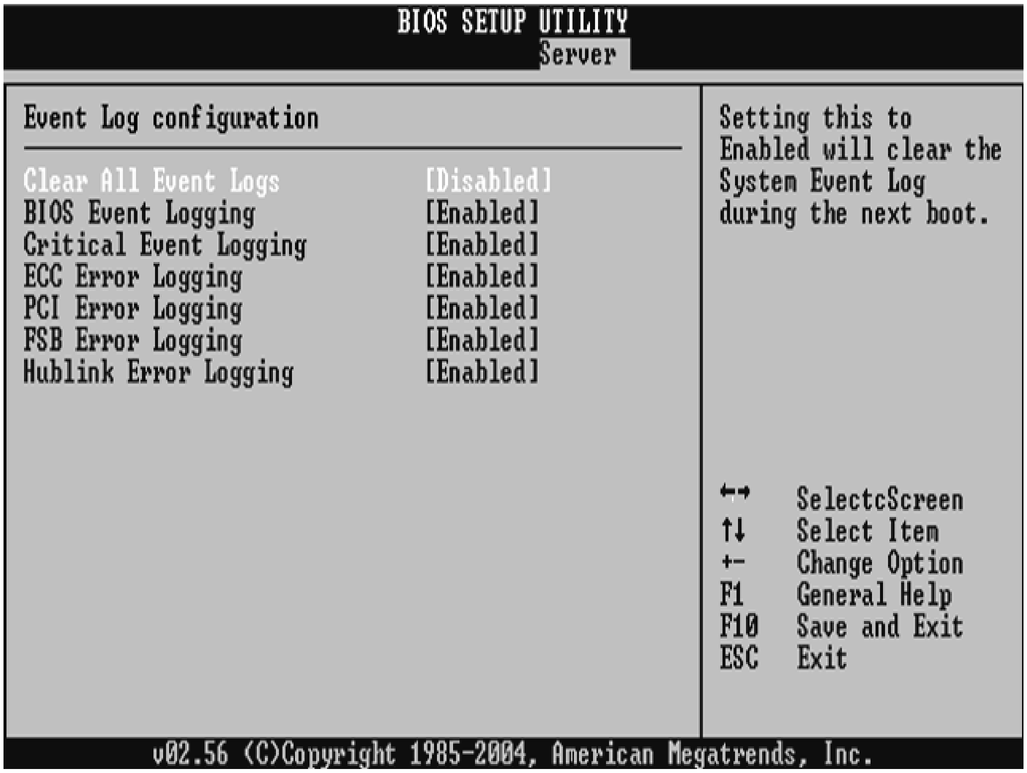

| Parameter | Description | Option |
|---|---|---|
| BIOS Redirection Port | If enabled, BIOS uses the specified serial port to redirect the console to a remote terminal. | Disabled<br>Serial A<br>Serial B |
| Baud Rate | Sets the transfer speed for console redirection. | 9600<br>19.2 K<br>38.4 K<br>57. 6 K<br>115.2 K |

| Parameter | Description | Option |
|---|---|---|
| Flow Control | If enabled, the system uses the flow control selected. | No Flow Control<br>CTS/RTS<br>XON/XOFF<br>CTS/RTS+CD |
| Terminal Type | | PC-ANSI<br>VT100+<br>VT-UTF8 |
| ACPI Redirection port | Enable or disable ACPI OS Headless Console Redirection. | Disabled<br>Serial A<br>Serial B |

# Event Log Configuration

The Event log configuration submenu allows you to configured the event log setting.



```
                    BIOS SETUP UTILITY
                                Server
Event Log configuration                     Setting this to
                                            Enabled will clear the
Clear All Event Logs         [Disabled]     System Event Log
BIOS Event Logging           [Enabled]      during the next boot.
Critical Event Logging       [Enabled]
ECC Error Logging            [Enabled]
PCI Error Logging            [Enabled]
FSB Error Logging            [Enabled]
Hublink Error Logging        [Enabled]

                                            ←→   SelectcScreen
                                            ↑↓   Select Item
                                            +-   Change Option
                                            F1   General Help
                                            F10  Save and Exit
                                            ESC  Exit

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```
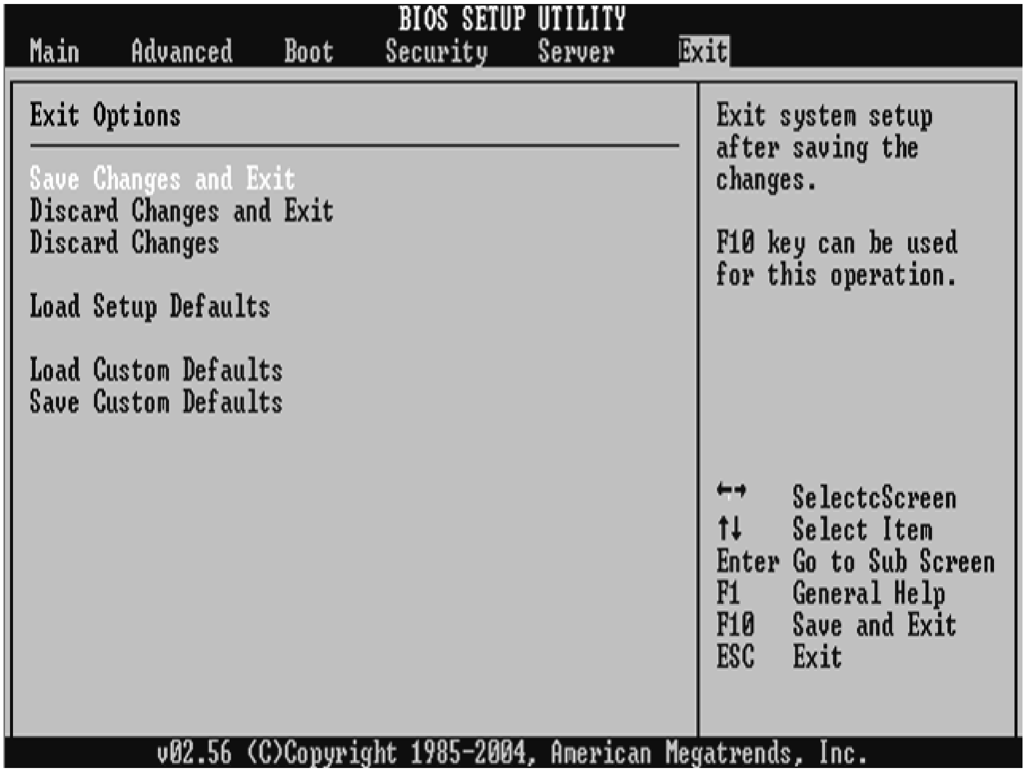

| Parameter | Description | Option |
|---|---|---|
| Clear All Event Logs | Enable to clear logs. | Disabled<br>Enabled |
| BIOS Event Logging | Allows logging of BIOS events. | Disabled<br>Enabled |
| Critical Event Logging | Logs fatal errors including PERR, SERR, and ECC. | Disabled<br>Enabled |
| ECC Event Logging | Enable or disable ECC event logging. | Disabled<br>Enabled |

| Parameter | Description | Option |
|---|---|---|
| PCI Error Logging | Enable or disable PCI error logging. | Disabled<br>Enabled |
| FSB Error Logging | Enable or disable Front-Side Bus logging. | Disabled<br>Enabled |
| Hublink Error Logging | Enable or disable Hublink error logging. | Disabled<br>Enabled |

# Exit

The Exit menu displays the various options to quit from the BIOS setup. Highlight any of the exit options then press **Enter**.


BIOS SETUP UTILITY
Main
Advanced
Boot
Security
Server
Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Setup Defaults
Load Custom Defaults
Save Custom Defaults
←→ SelectcScreen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit

Exit system setup after saving the changes.

F10 key can be used for this operation.

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| Parameter | Description |
|---|---|
| Save Changes and Exit | Saves changes made and close the BIOS setup.<br>Pressing F10 can also be used. |
| Discard Changes and Exit | Exit system setup without saving changes.<br>Pressing Esc can also be used. |
| Discard Changes | Discard any changes made to setup without exiting.<br>Pressing F7 can also be used. |
| Load Setup Defaults | Loads the original BIOS setup parameters.<br>Pressing F9 can also be used. |

| Parameter | Description |
|---|---|
| Load Custom Defaults | Loads the custom settings for all BIOS parameters as saved by user. |
| Save Custom Defaults | Saves custom settings for all BIOS parameters. |

# Upgrading the BIOS

The upgrade utility allows you to upgrade the BIOS in flash memory. The code and data in the upgrade file include the following:

- On-board BIOS, ATA-100 RAID BIOS, and PXE option ROMs for the devices that are embedded on the system board
- The Setup Utility
- The System BIOS

## Preparing for the Upgrade

The steps below explain how to prepare to upgrade the BIOS, including how to:

- Record the current BIOS settings
- Obtain the upgrade utility
- Prepare a bootable diskette for the utility

In the unlikely event that a BIOS error occurs during the BIOS update process, see "Recovering the BIOS" for instructions on performing a BIOS recovery.

## Recording the Current BIOS Settings

1 Boot the computer and press <F2> when you see the message:

Press <F2> Key if you want to run SETUP

2 Write down the current settings in the BIOS Setup program.

**Note:** Do not skip step 2. You will need these settings to configure your computer at the end of the procedure.

## Obtaining the Upgrade

Download the BIOS image file to a temporary folder on your hard drive.

**Note:** Review the instructions distributed with the upgrade utility before attempting a BIOS upgrade. Review also any release notes in the release notes file that accompanies the new version of the BIOS. The release notes may contain critical information regarding jumper settings, specific fixes, or other information to complete the upgrade.

## Creating a Bootable Diskette

Use a DOS system to create the diskette as follows:

1. Insert a diskette in diskette drive A.
2. At the C:\ prompt, for an unformatted diskette, type:

   format a:/s
3. or, for a diskette that is already formatted, type:

   sys a:
4. Press <Enter>.

## Creating the BIOS Upgrade Diskette

The BIOS upgrade file is a compressed self-extracting archive that contains the files you need to upgrade the BIOS.

1. Insert the bootable diskette into the diskette drive.
2. While in the directory into which you downloaded the upgrade file(s), type [filename] a: where “[filename]” is the name of the file that you downloaded. This command extracts the update files and places them onto the bootable diskette

## Upgrading the BIOS

1. Place the bootable diskette containing the BIOS update files into the diskette drive of your system. Boot the system with the diskette in the drive.
2. A menu will appear with two options.  Use option 1 to automatically update the system BIOS.

   Use option 2 to manually update the system BIOS and the User Binary.

3 If you selected option 1, to automatically update the system BIOS:

The system will execute the AfuDOS update utility to update the BIOS. When the update is complete, the utility will display a green box with a message that says “Completed Successfully.” The system will then reboot.

4 4.If you selected option 2, to manually update the BIOS or to update the flash memory, you can either select “Update Flash Memory From a File” or “Update System BIOS”:

- Update Flash Memory From a File: When prompted for a file name, type BIOS.wph and press Enter.
- Update System BIOS: The system will warn you that the BIOS will be updated.  Verify the BIOS version is correct and press Enter to continue. When the update is complete, the utility will display a green box with a message that says “Completed Successfully.” The system will then reboot.

5 Wait while the BIOS files are updated. Do not power down the system during the BIOS update process! The system will reset automatically when the BIOS update process is completed. Remove the diskette from the diskette drive.

6 Check to make sure the BIOS version displayed during POST is the new version as the system reboots.

7 Enter Setup by pressing the F2 key during boot.

8 In Setup, press the F9 and <Enter> to set the parameters back to default values.

9 Re-enter the values you wrote down at the beginning of this process. Press F10 and <Enter> to exit BIOS Setup and Save Changes.

10 If you do not set the CMOS values back to defaults using the F9 key, the system may function erratically.

**Note:** You may encounter a CMOS Checksum error or other problem after reboot. If this happens, shut down the system and boot it again. CMOS checksum errors require that you enter Setup, check your settings, save your settings, and exit Setup.

# Changing the BIOS Language

You can use the BIOS upgrade utility to change the language the BIOS uses for messages and the Setup program. Use a bootable diskette containing the Acer flash utility and language files.

1. Boot the computer with the bootable diskette in drive A. The BIOS upgrade utility screen appears.
2. Select Update Flash Memory From a File.
3. Select Update Language Set. Press <Enter>.
4. Select drive A and use the arrow keys to select the correct .lng file. Press <Enter>.
5. When the utility asks for confirmation that you want to flash the new language into memory, select continue with Programming. Press <Enter>.
6. When the utility displays the message upgrade is complete, remove the diskette. Press <Enter>.
7. The computer will reboot and the changes will take effect.

# Recovering the BIOS

In the rare event that the BIOS becomes damaged, a recovery process needs to be followed to return the system to service. Two methods are available to recover the BIOS: automatically with the crisis recovery diskette, and manually by moving a jumper on the system board. These methods are described below.

**Note:** BIOS recovery is the mode of last resort, used only when the main system BIOS will not come up.

# Manually Recovering the BIOS

A BIOS recovery can be manually initiated. This option would be used only when the BIOS is corrupt, but the ROM checksum error does not occur during POST. To manually initiate a BIOS recovery, use the following steps:

1. Power down and uplug the system from the AC power source.

2 Move the recovery jumper at J1D1 from pins 13 and 14 to cover pins 14 and 15.

3 Insert a bootable diskette containing the file AMIBOOT.ROM into the A: diskette drive.

4 Plug the system into the AC power source and power it on.

5 A blue screen will be displayed and the recovery process will automatically run. The system will continue to beep throughout the recovery process. The recovery process is complete when the beeping stops.

6 Remove the diskette.

7 Power down and unplug the system from the AC power source.

8 Move the BIOS recovery jumper at J1D1 back to the original position, covering pins 13 and 14.

9 Plug the system into the AC power source and power it up to confirm that the recovery was successful.

# Clearing the CMOS

If you are not able to access the BIOS setup screens, the CMOS Clear jumper will need to be used to reset the configuration RAM. The CMOS Clear jumper is located on jumper block J17.

1 Power down the system and disconnect the AC power.

2 Open the server.

3 Move the jumper from pins 1 and 2 to the Clear CMOS position, covering pins 2 and 3.

4 Reconnect the AC power, power up the system.

5 When the system begins beeping, power it down and disconnect the AC power.

6 Return the CMOS Clear jumper to the original location, covering pins 1 and 2.

7 Close the server chassis, reconnect the AC power and power up the system.

# Clearing the Password

If the user or administrator password(s) is lost or forgotten, moving the password clear jumper into the "clear" position clears both passwords. The password clear jumper must be restored to its original position before a new password(s) can be set. The password clear jumper is located on jumper block J17.

1. Power down the system and disconnect the AC power.
2. Open the server chassis.
3. Move the jumper from pins 5 and 6 to the Clear Password position, covering pins 6 and 7.
4. Reconnect the AC power, power up the system.
5. Power down the system and disconnect the AC power.
6. Return the Password Clear jumper to the original location, covering pins 5 and 6.
7. Close the server chassis.

# BIOS Error Messages

When a recoverable error occurs during the POST, the BIOS displays an error message describing the problem.

| Error Message | Explanation |
|---|---|
| GA20 Error | An error occurred with Gate A20 when switching to protected mode during the memory test. |
| Pri Master HDD Error<br>Pri Slave HDD Error<br>Sec Master HDD Error<br>Sec Slave HDD Error | Could not read sector from corresponding drive. |
| Pri Master Drive - ATAPI Incompatible<br>Pri Slave Drive - ATAPI Incompatible<br>Sec Master Drive - ATAPI Incompatible<br>Sec Slave Drive - ATAPI Incompatible | Corresponding drive is not an ATAPI device. Run Setup to make sure device is selected correctly. |
| A: Drive Error | No response from diskette drive. |
| CMOS Battery Low | The battery may be losing power. Replace the battery soon. |
| CMOS Display Type Wrong | The display type is different than what has been stored in CMOS. Check Setup to make sure type is correct. |
| CMOS Checksum Bad | The CMOS checksum is incorrect. CMOS memory may have been corrupted. Run Setup to reset values. |
| CMOS Settings Wrong | CMOS values are not the same as the last boot. These values have either been corrupted or the battery has failed. |
| CMOS Date/Time Not Set | The time and/or date values stored in CMOS are invalid. Run Setup to set correct values. |
| DMA Error | Error during read/write test of DMA controller. |

| Error Message | Explanation |
|---|---|
| FDC Failure | Error occurred trying to access diskette drive controller. |
| HDC Failure | Error occurred trying to access hard disk controller. |
| Checking NVRAM..... | NVRAM is being checked to see if it is valid. |
| Update OK! | NVRAM was invalid and has been updated. |
| Updated Failed | NVRAM was invalid but was unable to be updated. |
| Keyboard Error | Error in the keyboard connection. Make sure keyboard is connected properly. |
| KB/Interface Error | Keyboard interface test failed. |
| Memory Size Decreased | Memory size has decreased since the last boot. If no memory was removed, then memory may be bad. |
| Memory Size Increased | Memory size has increased since the last boot. If no memory was added, there may be a problem with the system. |
| Memory Size Changed | Memory size has changed since the last boot. If no memory was added or removed, then memory may be bad. |
| No Boot Device Available | System did not find a device to boot. |
| Off Board Parity Error | A parity error occurred on an off-board card. This error is followed by an address. |
| On Board Parity Error | A parity error occurred in onboard memory. This error is followed by an address. |
| Parity Error | A parity error occurred in onboard memory at an unknown address. |
| NVRAM / CMOS / PASSWORD cleared by Jumper | NVRAM, CMOS, and passwords have been cleared. The system should be powered down and the jumper removed. |
| <CTRL_N> Pressed | CMOS is ignored and NVRAM is cleared. User must enter Setup. |

# BIOS POST Beep Codes

The table below lists the POST error beep codes. Prior to system video initialization, the BIOS uses these beep codes to inform users of error conditions. The beep code occurs only when a critical error occurs or when the BIOS fails to boot to the operating system. Please note that not all error conditions are supported by BIOS beep codes.

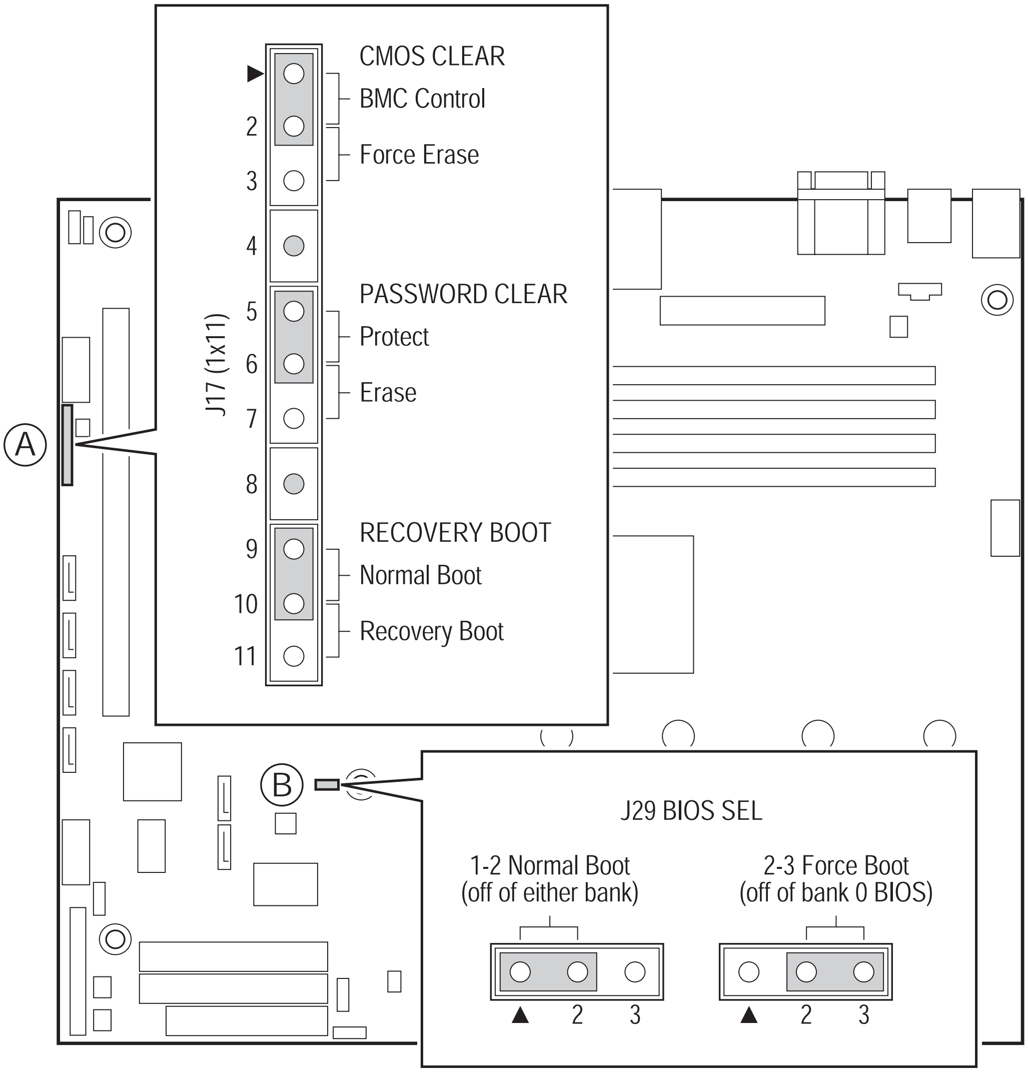
| Number of Beeps | Description |
|---|---|
| 1 | Refresh failure |
| 2 | Parity cannot be reset |
| 3 | First 64 Kb memory failure |
| 4 | Timer not operational |
| 5 | Processor failure (Reserved; not used) |
| 6 | 8042 GateA20 cannot be toggled (memory failure or not present) |
| 7 | Exception interrupt error |
| 8 | Display memory R/W error |
| 9 | (Reserved; not used) |
| 10 | CMOS Shutdown register test error |
| 11 | Invalid BIOS (such as, POST module not found) |

# BIOS Recovery Beep Codes

| Beeps | Reason |
|---|---|
| 1 | One long beep - video is active. |
| 1-2 | One long beep and two short beeps: Insert the BIOS recovery diskette. |

An error or warning condition at boot can result in a series of beeps being issued known as "beep codes.” These beeps have a code that identifies system or PCI card events. For example, some Acer RAID cards have beep codes. Before checking for a system beep code error make sure the PCI card is not causing the beeping.

# Configuration and BIOS Select Jumpers


CMOS CLEAR
BMC Control
Force Erase
PASSWORD CLEAR
Protect
Erase
RECOVERY BOOT
Normal Boot
Recovery Boot
J17 (1x11)
2
3
4
5
6
7
8
9
10
11
A
B
J29 BIOS SEL
1-2 Normal Boot (off of either bank)
2-3 Force Boot (off of bank 0 BIOS)
2
3
2
3

## Configuration Jumper [J17]

| Jumper Name | Pins | What happens at system reset... |
|---|---|---|
| CMOS clear | 2-3 | If these pins are jumpered, the CMOS settings will be cleared on the next reset. These pins should be jumpered on 1-2 for normal operation. |

| Jumper Name | Pins | What happens at system reset... |
|---|---|---|
| Password Clear | 6-7 | If these pins are jumpered, administrator and user passwords will be cleared on the next reset. These pins should be jumpered on 5-6 for normal operation. |
| BIOS Recovery | 10-11 | If these pins are jumpered, the system will attempt to recover the BIOS by loading the BIOS code into the flash device from a floppy disk. This jumper is typically only used when the BIOS has become corrupted. These pins should be jumpered on 9-10 for normal operation. |

BIOS Select Jumper [J29]

| Operation | Pins | What happens at system reset... |
|---|---|---|
| Normal Boot | 1-2 | If these pins are jumpered, the board will boot off of either BIOS (bank.0 or bank 1) depending on which is available first. |
| Force Boot | 2-3 | If these pins are jumpered, the board will boot off of bank 0 BIOS. |

# Appendix A: Troubleshooting

This chapter helps you identify and solve problems that might occur while you are using the system.

For any problem that you are encountering, first ensure you are using the latest firmware and files. Firmware upgrades include updates for BIOS and the hot-swap controller (HSC). In addition to the server firmware and files, also update any drivers used for components you have installed in your system, such as video drivers, network drivers, and SCSI drivers.

Acer provides a package called the “Platform Confidence Test” that may help with your diagnostics.

## Resetting the System

Before going through in-depth troubleshooting, attempt first to perform reset your system using one of the methods below.

| To do this: | Press |
|---|---|
| Soft boot reset to clear the system memory and reload the operating system. | <Ctrl+Alt+Del> |
| Clear system memory, restart POST, and reload the operating system. | Reset button |
| Cold boot reset.  Turn the system power off and then on. This clears system memory, restarts POST, reloads the operating system, and halts power to all peripherals. | Power off/on |

## Problems following Initial System Installation

Problems that occur at initial system startup are usually caused by an incorrect installation or configuration.  Hardware failure is a less frequent cause. If the problem you are experiencing is with a specific software application, see "Problems with Newly Installed Application Software".

## First Steps Checklist

- AC power available at the wall outlet?
- Are the power supplies plugged in?  Check the AC cable(s) on the back of the chassis and at the AC source.
- Are all cables correctly connected and secured?

- Are the processors fully seated in their sockets on the server board?
- Are all standoffs in the proper location and not touching any components, causing a potential short?
- Are all add-in PCI boards fully seated in their slots on the server board?
- Are all jumper settings on the server board correct?
- Are all jumper and switch settings on add-in boards and peripheral devices correct? To check these settings, refer to the manufacturer’s documentation that comes with them. If applicable, ensure that there are no conflicts - for example, two add-in boards sharing the same interrupt.
- Are all peripheral devices installed correctly?
- If the system has a hard disk drive, is it properly formatted or configured?
- Are all device drivers properly installed?
- Are the configuration settings made in Setup correct?
- Is the operating system properly loaded? Refer to the operating system documentation.
- Did you press the system power on/off switch on the control panel to turn the server on (power on light should be lit)?
- Is the system power cord properly connected to the system and plugged into a NEMA 5-15R outlet for 100-120 V~ or a NEMA 6-15R outlet for 200-240 V~?
- Are all integrated components from the tested components lists? Check the tested memory, and chassis lists, as well as the supported hardware and operating system list.

# Hardware Diagnostic Testing

This section provides a more detailed approach to identifying a hardware problem and locating its source.

CAUTION : Turn off devices before disconnecting cables: Before disconnecting any peripheral cables from the system, turn off the system and any external peripheral devices. Failure to do so can cause permanent damage to the system and/or the peripheral devices.

1 Turn off the system and all external peripheral devices. Disconnect each of device from the system, except for the keyboard and the video monitor.
2 Make sure the system power cord is plugged into a properly grounded AC outlet.
3 Make sure your video display monitor and keyboard are correctly connected to the system. Turn on the video monitor. Set its brightness and contrast controls to at least two thirds of their maximum ranges (see the documentation supplied with your video display monitor).
4 If the operating system normally loads from the hard disk drive, make sure there is no diskette in drive A and no CD-ROM disk in the CD-ROM drive.
5 If the power LED does light, attempt to boot from a floppy diskette or from a CD-ROM disk.
6 Turn on the system. If the power LED does not light, see "Power Light Does Not Light".

## Verifying Proper Operation of Key System Lights

As POST determines the system configuration, it tests for the presence of each mass storage device installed in the system. As each device is checked, its activity light should turn on briefly. Check for the following:

Does the diskette drive activity light turn on briefly? If not, see "Diskette Drive Activity Light Does Not Light".

If system LEDs are illuminated, see "LED Information" for a description of the light and steps to take to correct the problem.

## Confirming Loading of the Operating System

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the operating system prompt does not appear, see "No Characters Appear on Screen".

# Specific Problems and Corrective Actions

This section provides possible solutions for these specific problems:

- Power light does not light.
- No characters appear on screen.
- Characters on the screen appear distorted or incorrect.
- System cooling fans do not rotate.
- Diskette drive activity light does not light.
- Hard disk drive activity light does not light.
- CD-ROM drive activity light does not light.
- There are problems with application software.
- The bootable CD-ROM is not detected.

Try the solutions below in the order given. If you cannot correct the problem, contact your service representative or authorized dealer for help.

# Power Light Does Not Light

Check the following:

- Did you press the power-on button?
- Is the system operating normally? If so, the power LED might be defective or the cable from the control panel to the server board might be loose.
- Have you securely plugged the server AC power cord into the power supply?
- Is the power supply correctly set to 110V or 235V, depending on your power output?
- Will other items plugged into the same power outlet function correctly?
- Some ATX power supplies have a power switch on the back of the power supply, next to the fan. If your system has one, is it turned on?
- Remove all add-in cares and see if the system boots. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory DIMMs comply with the system

requirements.

- Make sure the memory DIMMs have been populated according to the system requirements.
- Remove the memory DIMMs and re-seat them.
- Make sure the processor(s) comply with the system requirements.
- Make sure the processor(s) have been populated according to the system requirements.
- Remove the processor(s) and re-seat them.

Make sure the chassis standoffs are installed only below mounting holes. Misplaced standoffs can contact the pins on the bottom of the server board and cause a short.

# No Characters Appear on Screen

Check the following:

- Is the keyboard functioning?  Test it by turning the “Num Lock” function on and off to make sure the Num Lock light is functioning.
- Is the video monitor plugged in and turned on? If you are using a switch box, is it switched to the correct system?
- Are the brightness and contrast controls on the video monitor properly adjusted?
- Is the video monitor signal cable properly installed?
- Does this video monitor work correctly if plugged into a different system?
- Is the onboard video controller enabled in the BIOS?
- Remove all add-in cares and see if the video returns. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory DIMMs comply with the system requirements.
- Make sure the memory DIMMs have been populated according to the system requirements.
- Remove the memory DIMMs and re-seat them.
- Make sure the processor(s) comply with the system requirements.
- Make sure the processor(s) have been populated according to the

system requirements.

- Remove the processor(s) and re-seat them.

If you are using an add-in video controller board, do the following:

1. Verify that the video works using the onboard video controller.
2. Verify that the video controller board is fully seated in the server board connector.
3. Reboot the system for changes to take effect.
4. If there are still no characters on the screen after you reboot the system and POST emits a beep code, write down the beep code you hear. This information is useful for your service representative.
5. If you do not receive a beep code and characters do not appear, the video display monitor or video controller may have failed. Contact your service representative or authorized dealer for help.

## Characters Are Distorted or Incorrect

Check the following:

- Are the brightness and contrast controls properly adjusted on the video monitor? See the manufacturer's documentation.
- Are the video monitor's signal and power cables properly installed?
- Does this video monitor work correctly if plugged into a different system?

## System Cooling Fans Do Not Rotate Properly

If the system cooling fans are not operating properly, it is an indication of possible system component failure.

Check the following:

- Is the power-on light lit? If not, see "Power Light Does Not Light".
- If your system has LED lights for the fans, is one or more of these LEDs lit?
- Are any other control panel LEDs lit?
- Have any of the fan motors stopped? Use the server management subsystem to check the fan status.

- Have your fans speeded up in response to an overheating situation?
- Have your fans speeded up in response to a fan that has failed?
- Are the fan power connectors properly connected to the server board?
- Is the cable from the control panel board connected to the both the control panel board and to the server board?
- Are the power supply cables properly connected to the server board?
- Are there any shorted wires caused by pinched-cables or have power connector plugs been forced into power connector sockets the wrong way?

## Diskette Drive Activity Light Does Not Light

Check the following:

- Are the diskette drive’s power and signal cables properly installed?
- Are all relevant switches and jumpers on the diskette drive set correctly?
- Is the diskette drive properly configured?
- Is the diskette drive activity light always on? If so, the signal cable may be plugged in incorrectly.

If you are using the onboard diskette controller, use the BIOS setup to make sure that “Onboard Floppy” is set to “Enabled." If you are using an add-in diskette controller, make sure that “Onboard Floppy” is set to “Disabled.”

## Optical Drive Activity Light Does Not Light

Check the following:

- Are the CD-ROM/DVD-ROM drive’s power and signal cables properly installed?
- Are all relevant switches and jumpers on the drive set correctly?
- Is the drive properly configured?

# Cannot Connect to a Server

- Make sure the network cable is securely attached to the correct connector at the system back panel.
- Try a different network cable.
- Make sure you are using the correct and the current drivers.
- Make sure the driver is loaded and the protocols are bound.
- Make sure the hub port is configured for the same duplex mode as the network controller.
- Make sure the correct networking software is installed.
- If you are directly connecting two servers (without a hub), you will need a crossover cable.
- Check the network controller LEDs next to the NIC connectors.

# Problems with Network

## The server hangs when the drivers are loaded.

- Certain drivers may require interrupts that are not shared with other PCI drivers. For these drivers, it may be necessary to alter settings so that interrupts are not shared. See the documentation that came with your PCI card(s) for information on changing interrupts.

## Diagnostics pass but the connection fails.

- Make sure the network cable is securely attached.
- Make sure you specify the correct frame type in your NET.CFG file.

## The controller stopped working when an add-in adapter was installed.

- Make sure the cable is connected to the port from the onboard network controller.
- Make sure your BIOS is current.
- Make sure the other adapter supports shared interrupts. Make sure your operating system supports shared interrupts.
- Try reseating the add-in adapter.

The add-in adapter stopped working without apparent cause.

- Try reseating the adapter first; then try a different slot if necessary.
- The network driver files may be corrupt or deleted. Delete and then reinstall the drivers.
- Run the diagnostics.

## System Boots when Installing PCI Card

System Server Management features require full-time “standby” power. This means some parts of the system have power going to them whenever the power cord is plugged in, even if you have turned the system power off with the power button on the control panel. If you install a PCI card with the AC power cord plugged in, a signal may be sent to the command the system to boot. Before installing a PCI card, you should always:

- Turn off the server power by using the power button on the front of the system.
- Unplug the AC power cord(s) from the server.

## Problems with Newly Installed Application Software

Problems that occur when you run new application software are usually related to the software, not the server hardware. Faulty equipment is unlikely, especially if other software runs correctly.

Check the following:

- Make sure the system meets the minimum hardware requirements for the software. See the software documentation.
- Make sure the software is properly installed and configured for the system. See the software documentation.
- Use only an authorized copy. Unauthorized copies often do not work.
- If you are running the software from a diskette, CD-ROM or DVD-ROM, try a different diskette.
- Make sure the correct device drivers installed.

If the problems persist, contact the software vendor’s customer service representative.

# Problems with Application that Ran Correctly Earlier

Problems that occur after the system hardware and software have been running correctly sometimes indicate equipment failure. However, they can also be caused by file corruption or changes to the software configuration.

Check the following:

- If you are running the software from a diskette, CD-ROM or DVD-ROM, try a different diskette.
- Uninstall and reinstall the software. Make sure all necessary files are installed.
- If the problems are intermittent, there may be a loose cable, dirt in the keyboard (if keyboard input is incorrect), a marginal power supply, or other random component failures.
- If you suspect that a transient voltage spike, power outage, or brownout might have occurred, reload the software and try running it again. Symptoms of voltage spikes include a flickering video display, unexpected system reboots, and the system not responding to user commands.

**Random errors in data files:** If you are getting random errors in your data files, they may be getting corrupted by voltage spikes on your power line. If you are experiencing any of the above symptoms that might indicate voltage spikes on the power line, you may want to install a surge suppressor between the power outlet and the system power cord.

# Hard Drive(s) are not Recognized

Check the following:

- Make sure the drive is not disabled in BIOS Setup.
- Make sure the drive is connected correctly and that is plugged into the power supply.
- Make sure the drive is compatible.
- Make sure you have not exceeded the power budget for the server.
- If using SCSI drives, verify that each SCSI ID number is unique on

the SCSI bus. See your drive documentation for details on setting the SCSI ID for your drives.

- If using ATA drives, verify that the master/slave settings are set correctly. See your drive documentation for details on setting the master/slave settings.
- If using a RAID configuration with SCSI or SATA drives, make sure the RAID card is installed correctly.

## Bootable CD-ROM Is Not Detected

Check the following:

- Make sure the BIOS is configured to allow the CD-ROM to be the first bootable device.

## LED Information

The Acer Altos G520 includes LEDs that can aid in troubleshooting your system. A table of these LEDs with a description of their use is listed below.

| LED Name | Function | Location | Color | Correction |
|---|---|---|---|---|
| System fault | Visible fault warning | Control panel and board rear left corner | Green or Amber | • Amber = critical error or non-recoverable<br>• Amber blink = non-critical |
| ATA activity | Control panel | Control panel and board left side | Green | Blinking = Activity. No action required. |
| Memory fault 1-6 | Identify failing memory module | DIMM end front of board | Amber | On = Fault |

| LED Name | Function | Location | Color | Correction |
|---|---|---|---|---|
| POST code 1-4 (LSB, bit1, bit2, MSB) | Display boot 80 POST code | Left rear of board | Each LED can be Off, Green, Amber, Red | See the POST code table |
| Fan Pack Fault | Warn on fan failure | Front center board | Amber | On = Fault |
| CPU 1 & 2 Fan Fault | Identify fan failure | Front center board | Amber | On = Fault |
| CPU 1 & 2 Fan Fault | Identify processor failure | 1” behind processor socket | Amber | On = Fault |
| 5v Standby | Identify 5v standby power on state | Front left board | Amber | On = 5v standby power on |
| Power LED | Identify the power state of the system | Control panel | Green | • Off = Power is off (off or S5)<br>• On = Power on or S0)<br>• Slow Blink = Low power state (S1 - S3) |

# Appendix B: ASM Quick Installation Guide

This appendix shows you how to install the ASM software package.

# Installing ASM

Acer Server Manager (ASM) consists of the ASM Console and the ASM Agent. These two components are both required to perform server management tasks.

## System requirements

ASM requires TCP/IP connectivity between the ASM Console and the ASM Agent.

### ASM Agent

- Altos Server System
- Min. of 128 MB RAM
- SCSI/IDE hard drive with at least 100 MB free hard disk space
- Microsoft Windows NT 4.0 or Windows 2000 Server/Advanced Server operating system

### ASM Console

- Intel Pentium III (500 MHz) or higher processor
- 128 MB of RAM
- SCSI/IDE hard drive with at least 100 MB free hard disk space
- Microsoft Windows 2000 Professional/XP/Server/Advanced Server operating system
- Ethernet card

## System setup

Make sure that your system meets the requirements listed above before proceeding. You may also want to change your screen to 800 x 600 resolution or higher for optimum viewing.

### Installing ASM Agent

To install ASM Agent:

1 Log in to the managed server using the Administrator account.

2 Insert the EasyBUILD™ Management CD into the server's CD-ROM drive.

The installation sequence will automatically be displayed.

3 Select the option for ASM installation.

The installation wizard will be initialized.

4 Follow all onscreen instructions to complete installation.

For detailed instructions on installing ASM Agent, refer to the ASM User's manual.

To launch the program, on the Windows taskbar click on the **Start** button, point to **Programs**, select **Acer Server Management Suite** then click **ASM Agent.**

## Installing ASM Console

To install ASM Console:

1 Log in to the target Windows-based PC using the Administrator account.

2 Insert the EasyBUILD™ Management CD into the computer's CD-ROM drive.

The installation sequence will automatically be displayed.

3 Select the option for ASM installation.

The installation wizard will be initialized.

4 Follow all onscreen instructions to complete installation.

For detailed instructions on installing ASM Console, refer to the ASM User's manual.

To launch the program, on the Windows taskbar click on the **Start** button, point to **Programs**, select **Acer Server Management Suite** then click **ASM Console**.

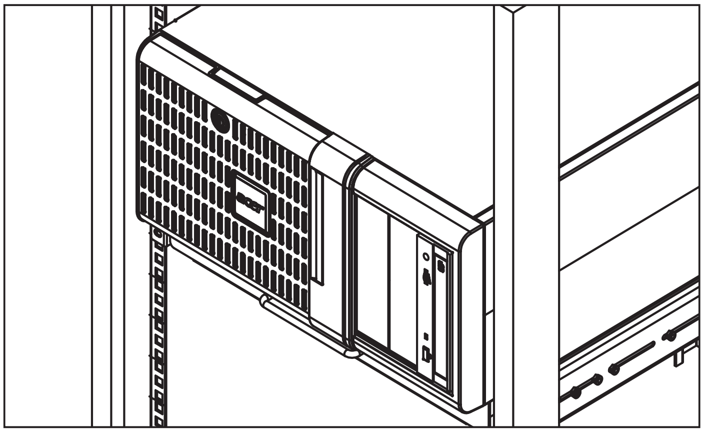
# Appendix C: Altos G520 Rack Installation Guide

This appendix shows you how to install the optional rack mount kit for Acer Altos G520.

# System rack installation

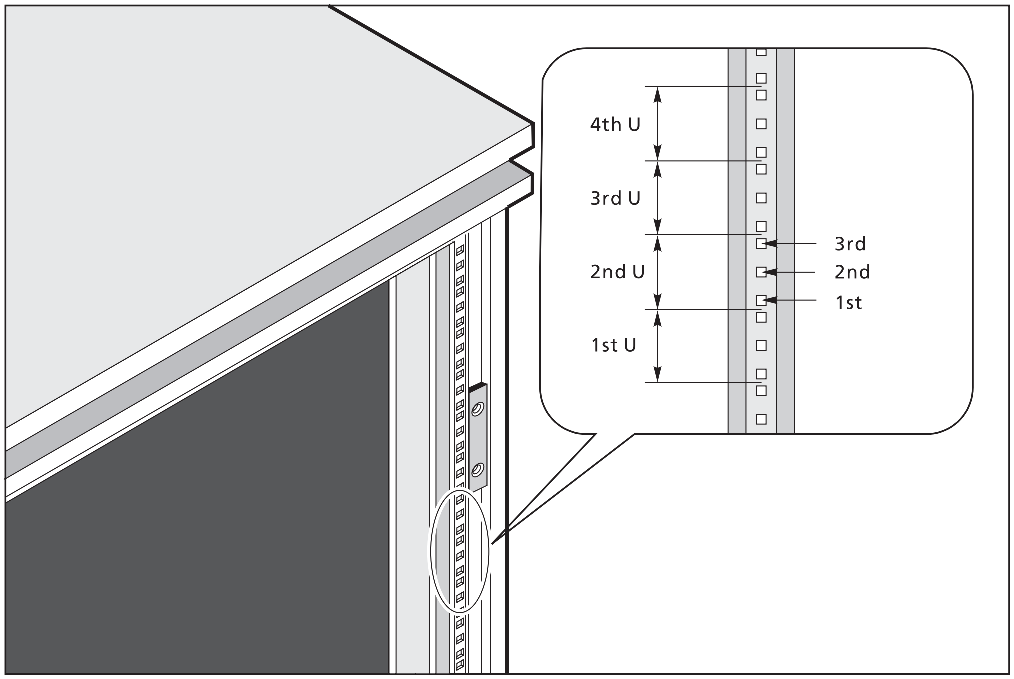
Aside from its tower configuration, the Altos G520 server system can also be mounted in a rack-model position.  A rack mount kit is available for customers who want to mount a server tower system in a server rack. To purchase a rack mount kit, contact your local Acer representative or order directly from Acer.com.

The figure below shows the Altos G520 mounted in as a rack server



# Vertical mounting hole pattern

The four vertical rails of a rack contain mounting holes arranged in a manner shown in the figure below:



The system occupies 5U in the rack. Count the U positions and hole numbers from the bottom up.

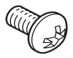
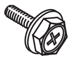
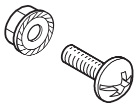
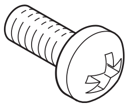
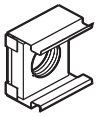
**Note:** The unit of measurement used in this document is "U" (1U = 1.75 inches or 44.45 mm). The total sum of the heights of all components in the rack measured in "U" cannot exceed the height of the rack. For more information, refer to the documentation that came with your system rack.

The distance from the center of two holes with closer spacing to the center of the next pair is equivalent to 1U.

When installing components, you must start your measurement from the center of the two holes with closer spacing. Otherwise, the screw holes on the component may not match those on the rack.

# Screw types for rack installation

The following screws are used in the mounting process for the Acer Altos G520 and other rack-mount components.

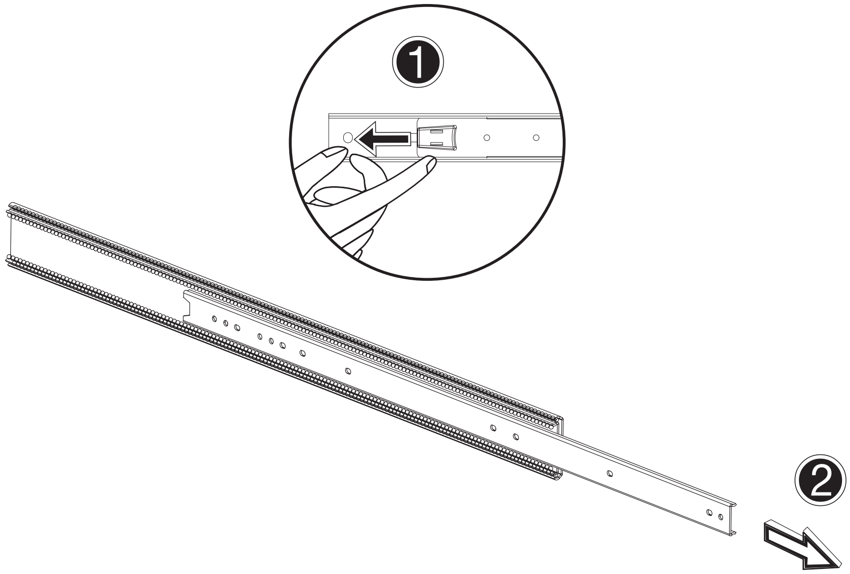
| | Screw type | Figure | Usage |
|---|---|---|---|
| 1 | #8-32 x 0.25 inch |  | Securing the inner mounting rails to the server |
| 2 | Hex head<br>#6-32 0.25 inch |  | Attaching the side handles to the server |
| 3 | M4 x L8<br>M4 nut |  | Securing the mounting brackets to the inner sliding piece |
| 4 | M6 x L10 |  | Securing the cable carrier and the mounting rails to the rack |
| | Cage nut |  | Supports the M6 metal screws for securing server components to the rack |

# Installing the system into the rack

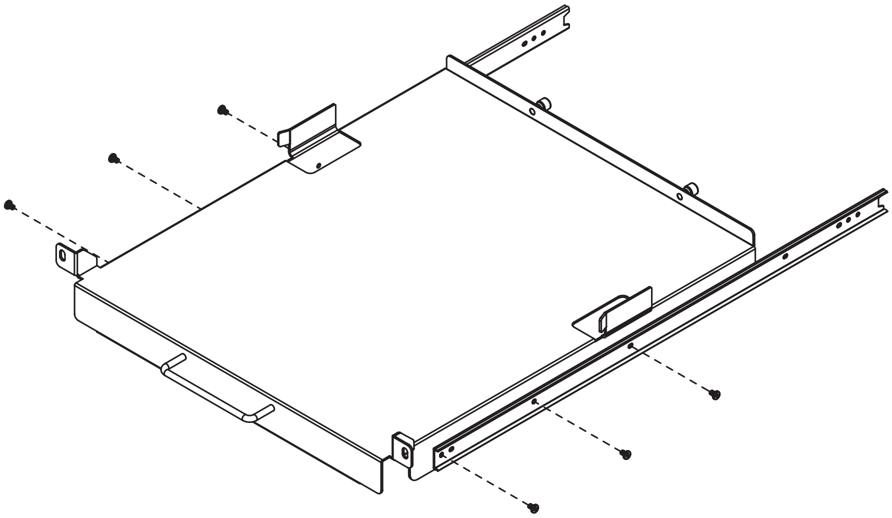
The Altos G520 Rack mount kit contains the server tray, two sets of rack brackets and mounting rails. The rack brackets attach the server tray to the mounting rails, which allow the server tray to slide in and out of the server rack for maintenance purposes.

1. Remove all items from the rack mount kit package.
2. Extend the inner rail until the rail release latch clicks.
3. Press the release latch then slip the inner rail out.

   Do the same thing with the other rack bracket.



4. Attach the inner rails to each side of the server tray with the release catches toward the front end of the server tray.

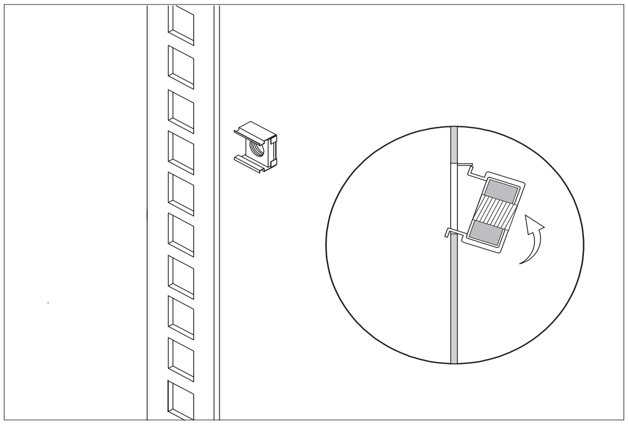


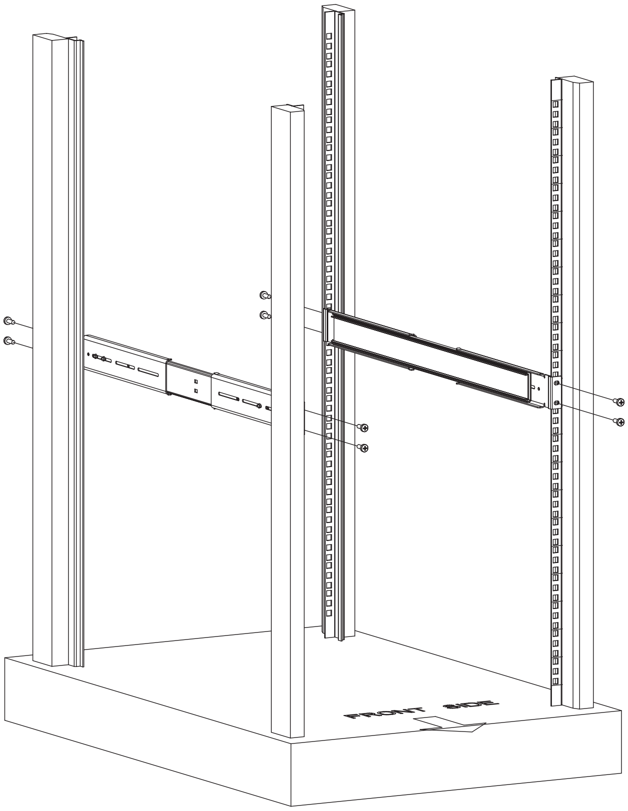
# Installing cage nuts

Cage nuts are used to secure system and other components to the vertical rails in the rack.

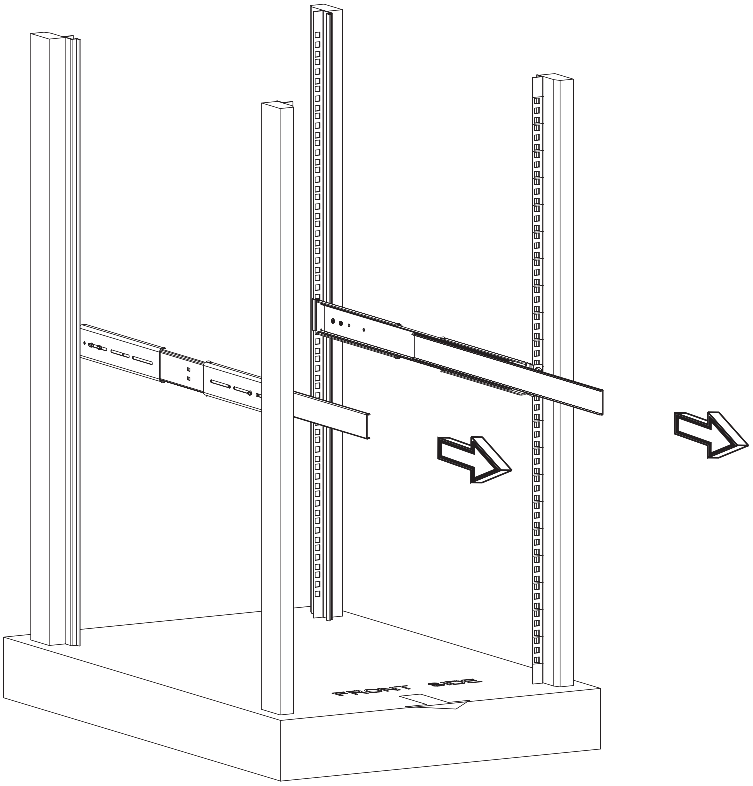
## To install cage nuts:

- Insert the lower lip of the cage nut over the bottom of the opening at the back of a rail.
- With your fingers, pinch the cage nut rack fastener and push in until the top lip locks into position.
- Repeat this process to install the other cage nuts in their appropriate locations.





5 Extend the middle sliding piece of each mounting rail forward until it clicks.



6 Install the server tray into the rack by first carefully aligning the inner rails with the fully extended middle mounting rails on the rack. Press the release latch on both sides of the server and slide the server tray.

> **Caution!** To avoid personal injury, care should be taken when pressing the component rail release latches and sliding the component into the rack.

7 Place the system on the server tray with the removeable left panel facing up.

8 Secure the system by tightening the two tooless screws at the back of the server tray to back of the server.

9 Insert the power, peripheral and networking cables into the appropriate ports. Refer to ”Connecting peripherals” on page 24 for detailed instructions.

# Appendix D: SATA RAID Configuration

This appendix shows you how to create SATA RAID.

# Configuring the onboard SATA RAID

This section briefly shows how to create RAID 1 (mirror) volume with onboard SATA RAID function.

## How to enable the onboard SATA RAID function

### Load BIOS default setting

1. Power on the server to start the system POST (Power On Self Test) process. During bootup, press <F2> to enter the BIOS setup screen.
2. Press <F9> to load BIOS default setting and press <F10> save the configuration changes and exit setup.

### Enable onboard SATA RAID function

1. In the BIOS Setup Utility, move cursor to <Advanced>. Then select <IDE Configuration> and press Enter.
2. Move cursor to Configure S-ATA as RAID and press Enter to change the Options to [Enabled].
3. Press <F10> save the configuration changes and exit setup.

## How to create RAID 1 volume

### Enter the onboard SATA RAID Configuration Utility

When you see the Intel Embedded Server RAID information shows on the screen during the POST (Power-On Self Test), press <Ctrl> + <E> to enter the Embedded RAID Configuration Utility.

## Loading onboard SATA RAID default setting

1. Select Objects from Management menu.
2. Select Adapter from Objects. The selectable adapter will be listed.
3. Press Enter on the adapter and the adapter setting will be shown on the screen. You can change the setting from this menu.

4 Select Factory Default and YES to load the default settings.

5 Exit the configuration utility and press <Ctrl> + <Alt> + <Del> to reboot the server.

## Create RAID 1 volume

1 Select Configuration from Management Menu.

2 Select New Configuration from the Configuration menu and select YES to continue. An array selection window displays the devices connected to the current controller.

3 Press the arrow keys to choose specific physical drives and press spacebar to associate the selected drive with the current array. The indicator for selected drive change from READY to ONLINE

4 Add 2 drives to current array and press <Enter> to finish creating current array.

5 Press Enter again to select array to configure.

6 Press spacebar to select the array and press <F10> to configure the logical drive

7 The default RAID level for 2 disk drives is RAID1. Just select Accept to use the default setting and press <Enter> to return to the ARRAY SELECTION MENU.

8 Press <Enter> to end the array configuration.

9 Select YES to Save Configuration and press any key to return to the Configure menu.

## Initial RAID Volume

1 Press <Esc> to return to the Management Menu.

2 Select Initialize from Management menu. All logical drives should be listed under Logical Drives.

3 Press <Spacebar> to select drives for initialization. The selected drive will be shown in yellow.

4 After selecting the drives, press <F10> and select YES to start the initialization process.

5 When initialization is complete, press any key to continue.

6 Press <Esc> to return to the Management Menu.

## Save and Exit Embedded RAID Configuration Utility

1. When RAID configuration and initialization is complete, press <Esc> in the Management Menu and select YES to exit the Embedded RAID Configuration Utility.
2. Press <Ctrl> + <Alt> + <Del> to reboot the server. Now you can start installing an OS on the RAID array.

**NOTE:** You can find the onboard SATA RAID driver in the EasyBUILD™ Resource CD and SATA RAID utility in the EasyBUILD™ Management CD.

# Appendix E: RAID Configuration

This appendix shows you how to create RAID.

# Configuring the SCSI/SCSI RAID HBA

This section briefly shows how to create a RAID 1 (mirror) volume. This feature requires installation/presence of LSI Logic 20320-R or LSI Logic 22320-R U32 SCSI controllers.

## How to use SCSI HBA setup utility

During the Power-On Self Test (POST), press <Ctrl > + <C> to enter the LSI Logic Configuration Utility.

### Loading HBA Default Settings

1. In the LSI Logic MPT SCSI Setup Utility, please press F2 and select Global Properties. Then, select <Restore Defaults>.
2. Press ESC, then select <Save changes then exit this menu>.
3. Move cursor to <53C1020/1030> and press Enter.
4. Move cursor to <Restore Defaults> and press Enter.
5. Press ESC, then select <Save changes then exit this menu>.

## How to use SCSI RAID HBA setup utility

### How To Create RAID 1 (Mirror) volume with a Hot Spare Disk

1. In the LSI Logic MPT SCSI Setup Utility, please select <53C1020/1030> and press Enter.
2. Move cursor to <RAID Properties> and press Enter.
3. In Array Disk field, press Space key to change the hard disk to [Yes].

**Note:** In the Array Disk field, if you change settings, you will see the following messages. Press the DELETE key to erase data.

F3 - keep Data (Create 2 disk array)

Delete - Erase Disk (Create 2 to 6 disk array)

4 In Hot Spare field, press Space key to change the hard disk to [Yes].

**Note:** In the Hot Spare field, if you change settings, you will see the following messages. Press the DELETE key to ignore it.

WARNING: Data on drive will be LOST!

Press DELETE if data loss OK or any other key to cancel.

5 Press ESC, then select <Save changes then exit this menu>.

## RAID Volume Initialization

After you create RAID volume and save the changes, the disk controller will initialize RAID volume automatically. As LSI Logic 20320-R/22320-R can support background initialization, you don't have to wait for the initialization to complete. Now, you can exit LSI Logic Configuration Utility.

## Exit and Restart the server

1 Press ESC, then select <Exit the Configuration Utility>. Then, you will see a [Global properties saved. Hit any key to reboot.] message.

2 Press a key to reboot system.

# MegaRAID Configuration Utility

Turn on the system power. When prompted, press <Ctrl> + <M> to enter the MegaRAID Configuration Utility. After entering the MegaRAID Configuration Utility, you will see the Management Menu on the screen.

## Load RAID Card Default Setting

1 Select Objects from Management menu.

2 Select Adapter from Objects. The adapter setting will be shown on the screen. You can change the setting from this menu.

3 Select Factory Default and YES to load the default settings.

4 Press <Ctrl> + <Alt> + <Del> to reboot the server.

## Create RAID1 Volume

1 After the server has rebooted, press <Ctrl> + <M> to enter the MegaRAID Configuration Utility again.

2 Select Configuration from Management Menu.

3 Select New Configuration from the Configuration menu and select YES to continue. An array selection window displays the devices connected to the current controller.

4 Press the arrow keys to choose specific physical drives and press spacebar to associate the selected drive with the current array. The indicator for selected drive change from READY to ONLINE A[array number]-[drive number]. For example, ONLINE A1-2 means disk drive 2 in array 1.

5 Add 2 drives to current array and press <Enter> to finish creating current array.

6 Press <F10> to configure the logical drives.

7 The default RAID level for 2 disk drives is RAID1. Just select Accept to use the default setting and press <Enter> to return to the ARRAY SELECTION MENU.

8 Press <Enter> to end the array configuration.

9 Select YES to Save Configuration and press any key to return to the Configure menu.

## Assign Hot Spare Disk

1 Select Add/View Configuration from Configuration menu.

2 Press arrow keys to choose specific physical drives and press <F4> to set the drive as Hot Spare Disk. Select YES to confirm and the indicator for selected drive change from READY to HOTSP.

3 Press <Esc> to end the array configuration.

4 Select YES to Save Configuration and press any key to return to the Configure menu.

## Initialize RAID Volume

1 Press <Esc> to return to the Management Menu.

2 Select Initialize from Management menu. All logical drives should be listed under Logical Drives.

3 Press <Spacebar> to select drives for initialization. The selected drive will be shown in yellow.

4. After selecting the drives, press <F10> and select YES to start the initialization process.
5. When initialization is complete, press any key to continue.
6. Press <Esc> to return to the Management Menu.

## Save And Exit MegaRAID Configuration Utility

1. When RAID configuration and initialization is complete, press <Esc> in the Management Menu and select YES to exit the MegaRAID Configuration Utility.
2. Press <Ctrl> + <Alt> + <Del> to reboot the server. Now you can start installing an OS on the RAID array.

# Appendix F: Diagnostic Code Checkpoints

This appendix includes tables of codes and error messages that may be encountered when operating the system.

# POST Code Checkpoints

Each of the four LEDs can have one of four states: Off, Green, Red, or Amber. The LED diagnostics feature consists of a hardware decoder and four dual color LEDs. During POST, the LEDs will display all normal Port80 codes representing the progress of the BIOS POST. Each postcode will be represented by a combination of colors from the 4 LEDs. During the POST process, each light sequence represents a specific Port-80 POST code. If a system should hang during POST, the Diagnostic LEDs will present the last test executed before the hang. When reading the lights, the LEDs should be observed from the back of the system.

| Check point | Diagnostic LED Decoder | | | | Description |
|---|---|---|---|---|---|
| | G=Green, R=Red, A+Amber | | | | |
| | MSB | | | LSB | |
| 03 | OFF | OFF | G | G | Disable NMI, parity, video for EGA, and 03DMA controllers. Initialize BIOS, POST, Run-time data area. Initialize BIOS modules on POST entry and GPNV area. Initialized CMOS as mentioned in the Kernel Variable “wCMOSFlags” |
| 04 | OFF | G | OFF | OFF | Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A.<br>Initializes data variables that are based on CMOS setup questions. Initializes both the 8259 compatible PICs in the system |

| Check point | Diagnostic LED Decoder | | | | Description |
|---|---|---|---|---|---|
| | G=Green, R=Red, A+Amber | | | | |
| | MSB | | | LSB | |
| 05 | OFF | G | OFF | G | Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table. |
| 06 | OFF | G | G | OFF | Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt.<br>Traps INT1Ch vector to "POSTINT1ChHandlerBlock." |
| 08 | G | OFF | OFF | OFF | Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5. |
| CO | R | R | OFF | OFF | Early CPU Init Start -- Disable Cache - Init Local APIC |
| C1 | R | R | OFF | G | Set up boot strap processor information |
| C2 | R | R | G | OFF | Set up boot strap processor for POST |
| C5 | R | A | OFF | G | Enumerate and set up application processors |
| C6 | R | A | G | OFF | Re-enable cache for boot strap processor |
| C7 | R | A | G | G | Early CPU Init Exit |

| Check point | Diagnostic LED Decoder<br>G=Green, R=Red, A+Amber<br>MSB | | | LSB | Description |
|---|---|---|---|---|---|
| 0A | G | OFF | G | OFF | Initializes the 8042 compatible Key Board Controller |
| 0B | G | OFF | G | G | Detects the presence of PS/2 Mouse |
| 0C | G | G | OFF | OFF | Detects the presence of Keyboard in KBC Port |
| 0E | G | G | G | OFF | Testing and initialization of different Input Devices. Also, update the Kernel Variables.<br>Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules. |
| 13 | OFF | OFF | G | A | Early POST initialization of chipset registers |
| 24 | OFF | G | R | OFF | Uncompress and initialize any platform specific BIOS modules |
| 30 | OFF | OFF | R | R | Initialize System Management Interrupt |
| 2A | G | OFF | A | OFF | Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information |

| Check point | Diagnostic LED Decoder<br>G=Green, R=Red, A+Amber<br>MSB | | | LSB | Description |
|---|---|---|---|---|---|
| 2C | G | G | R | OFF | Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs |
| 2E | G | G | A | OFF | Initializes all the output devices |
| 31 | OFF | OFF | R | A | Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module. |
| 33 | OFF | OFF | A | A | Initializes the silent boot module. Set the window for displaying text information. |
| 37 | OFF | G | A | A | Displaying sign-on message, CPU information, setup key message, and any OEM specific information. |
| 38 | G | OFF | R | R | Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information. |
| 39 | G | OFF | R | A | Initializes DMAC-1 and DMAC-2. |
| 3A | G | OFF | A | R | Initialize RTC date/time |

| Check point | Diagnostic LED Decoder | | | | Description |
|---|---|---|---|---|---|
| | G=Green, R=Red, A+Amber | | | | |
| | MSB | | | LSB | |
| 3B | G | OFF | R | A | Test for total memory installed in the system. Also, check for DEL or ESC keys to limit memory test. Display total memory in the system. |
| 3C | G | G | R | R | Mid POST initialization of chipset registers. |
| 40 | OFF | R | OFF | OFF | Detect different devices (Parallel ports, serial ports, and coprocessor in CPU...etc). successfully installed in the system and update the BDA, EBDA...etc. |
| 50 | OFF | R | OFF | R | Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed. |
| 52 | OFF | R | G | R | Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory. |
| 60 | OFF | R | R | OFF | Initializes NUM-LOCK status and programs the KBD typematic rate. |
| 75 | OFF | A | R | A | Initialize Int-13 and prepare for IPL detection. |

| Check point | Diagnostic LED Decoder<br>G=Green, R=Red, A+Amber<br>MSB | | | LSB | Description |
|---|---|---|---|---|---|
| 78 | G | R | R | R | Initializes IPL devices controlled by BIOS and option ROMs. |
| 7A | G | R | A | R | Intializes remaining option ROMs. |
| 7C | G | A | R | R | Generate and write contents of ESCD in NVRam. |
| 84 | R | G | OFF | OFF | Log errors encountered during POST. |
| 85 | R | G | OFF | G | Display errors to the user and get the user response for error. |
| 87 | R | G | G | G | Execute BIOS setup if needed/requested. |
| 8C | A | G | OFF | OFF | Late POST initialization of chipset registers. |
| 8D | A | G | OFF | G | Build ACPI tables (if ACPI supported). |
| 8E | A | G | G | OFF | Program the peripheral parameters. Enable/ Disable NMI as selected |
| 90 | R | OFF | OFF | R | Late POST initialization of system management interrupt. |
| A0 | R | OFF | R | OFF | Check boot password if installed |
| A1 | R | OFF | R | G | Clean-up work needed before booting to operating system. |

| Check point | Diagnostic LED Decoder<br>G=Green, R=Red, A+Amber<br>MSB | | | LSB | Description |
|---|---|---|---|---|---|
| A2 | R | OFF | A | OFF | Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed. |
| A4 | R | G | R | OFF | Initialize runtime language module. |
| A7 | R | G | A | G | Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's. |
| A8 | A | OFF | R | OFF | Prepare CPU for operating system boot including final MTRR values. |
| A9 | A | OFF | R | G | Wait for user input at config display if needed. |
| AA | A | OFF | A | OFF | Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module. |
| AB | A | OFF | A | G | Prepare BBS for Int 19 boot. |
| AC | A | G | R | A | End of POST initialization of chipset registers. |

| Check point | Diagnostic LED Decoder<br>G=Green, R=Red, A+Amber<br>MSB | | | LSB | Description |
|---|---|---|---|---|---|
| B1 | R | OFF | R | A | Save system context for ACPI. |
| 00 | OFF | OFF | OFF | OFF | Passes control to OS Loader (typically INT19h). |

## Bootblock Initialization Code Checkpoints

The Bootblock initialization code sets up the chipset, memory and other components before system memory is available. The following table describes the type of checkpoints that may occur during the bootblock initialization portion of the BIOS:

| Check point | Diagnostic LED Decoder<br>G=Green, R=Red, A+Amber<br>MSB | | | LSB | Description |
|---|---|---|---|---|---|
| Before D1 | | | | | Early chipset initialization is done. Early super I/O initialization is done including RTC and keyboard controller. NMI is disabled. |
| D1 | R | R | OFF | A | Perform keyboard controller BAT test. Check if waking up from power management suspend state. Save power-on CPUID value in scratch CMOS. |
| D0 | R | R | OFF | R | Go to flat mode with 4GB and GA20 enabled. Verify the bootblock checksum. |

| Check point | Diagnostic LED Decoder | | | | Description |
|---|---|---|---|---|---|
| | G=Green, R=Red, A+Amber | | | | |
| | MSB | | | LSB | |
| D2 | R | R | G | R | Disable CACHE beforfe memory detection. Execute full memory sizing module. Verify that flate mode is enabled. |
| D3 | R | R | G | A | Disable CACHE before memory detection. Execute full memory sizing module. Verify that flat mode is enabled. |
| D4 | R | A | OFF | R | Test base 512KB memory. Adjust policies and cache first 8MB. |
| D5 | R | A | OFF | A | Bootblock code is copied from ROM to lower system memory and control is given to it. BIOS now executes out of RAM. |
| D6 | R | A | G | R | Both key sequence and OEM specific method is checked to determine if BIOS recovery is forced. Main BIOS checksum is tested. If BIOS recovery is necessary, control flows to checkpoint E0. See Bootblock Recovery Code Checkpoints section of document for more information. |

| Check point | Diagnostic LED Decoder | | | | Description |
|---|---|---|---|---|---|
| | G=Green, R=Red, A+Amber | | | | |
| | MSB | | | LSB | |
| D7 | R | A | G | A | Restore CPUID value back into register. The Bootblock-Runtime interface module is moved to system memory and control is given to it. |
| D8 | A | R | OFF | R | The Runtime module is uncompressed into memory. CPUID information is stored in memory. |
| D9 | A | R | OFF | A | Store the Uncompressed pointer for future use in PMM. Copying Main BIOS into memory. Leaves all RAM below 1MB Read-Write including E000 and F000 shadow areas but closing SMRAM. |
| DA | A | R | G | R | Restore CPUID value back into register. Give control to BIOS POST (Execute POST Kernel). See POST Code Checkpoints section of document for more information. |

# Bootblock Recovery Code Checkpoint

The bootblock recovery code gets control when the BIOS determines that a BIOS recovery needs to occur because the user has forced the update or the BIOS checksum is corrupt. The following table describes the type of checkpoints that may occur during the Bootblock recovery portion of the BIOS:

| Check point | Diagnostic LED Decoder | | | | Description |
|---|---|---|---|---|---|
| | G=Green, R=Red, A=Amber | | | | |
| | MSB | | | LSB | |
| E0 | R | R | R | OFF | Initialize the floppy controller in the super I/O. Some interrupt vectors are intialized. DMA controller is initialized. 8259 interrupt controller is initialized. L1 cache is enabled. |
| E9 | A | R | R | OFF | Set up floppy controller and data. Attempt to read from floppy. Determine information about root directory of recovery media. |
| EA | A | R | A | OFF | Enable ATAPI hardware. Attempt to read from ARMD and ATAPI CD-ROM. Determine information about root directory of recovery media. |
| EB | A | R | A | G | Disable ATAPI hardware. Jump back to checkpoint E9. |

| Check point | Diagnostic LED Decoder | | | | Description |
|---|---|---|---|---|---|
| | G=Green, R=Red, A=Amber | | | | |
| | MSB | | | LSB | |
| EF | A | A | A | G | Read error occured on media. Jump back to checkpoint EB. |
| F0 | R | R | R | R | Search for pre-defined recovery file name in root directory. |
| F1 | R | R | R | A | Recovery file not found. |
| F2 | R | R | A | R | Start reading FAT table and analyze FAT to find the clusters occupied by the recovery file. |
| F3 | R | R | A | A | Start reading the recovery file cluster by cluster. |
| F5 | R | A | R | A | Disable L1 cache. |
| FA | A | R | A | R | Check the validity of the recovery file configuration to the current configuration of the flash part. |
| FB | A | R | A | A | Make flash write enabled through chipset and OEM specific method. Detect proper flash part. Verify that the found flash part size equals the recovery file size. |
| F4 | R | A | R | R | The recovery file size does not equal the found flash part size. |
| FC | A | A | R | R | Erase the flash part. |
| FD | A | A | R | A | Program the flash part. |

| Check point | Diagnostic LED Decoder | | | | Description |
|---|---|---|---|---|---|
| | G=Green, R=Red, A=Amber | | | | |
| | MSB | | | LSB | |
| FF | A | A | A | A | The flash has been updated successfully. Make flash write disabled. Disable ATAPI hardware. Restore CPUID value back into register. Give control to F000 ROM and F000:FFF0h. |

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